

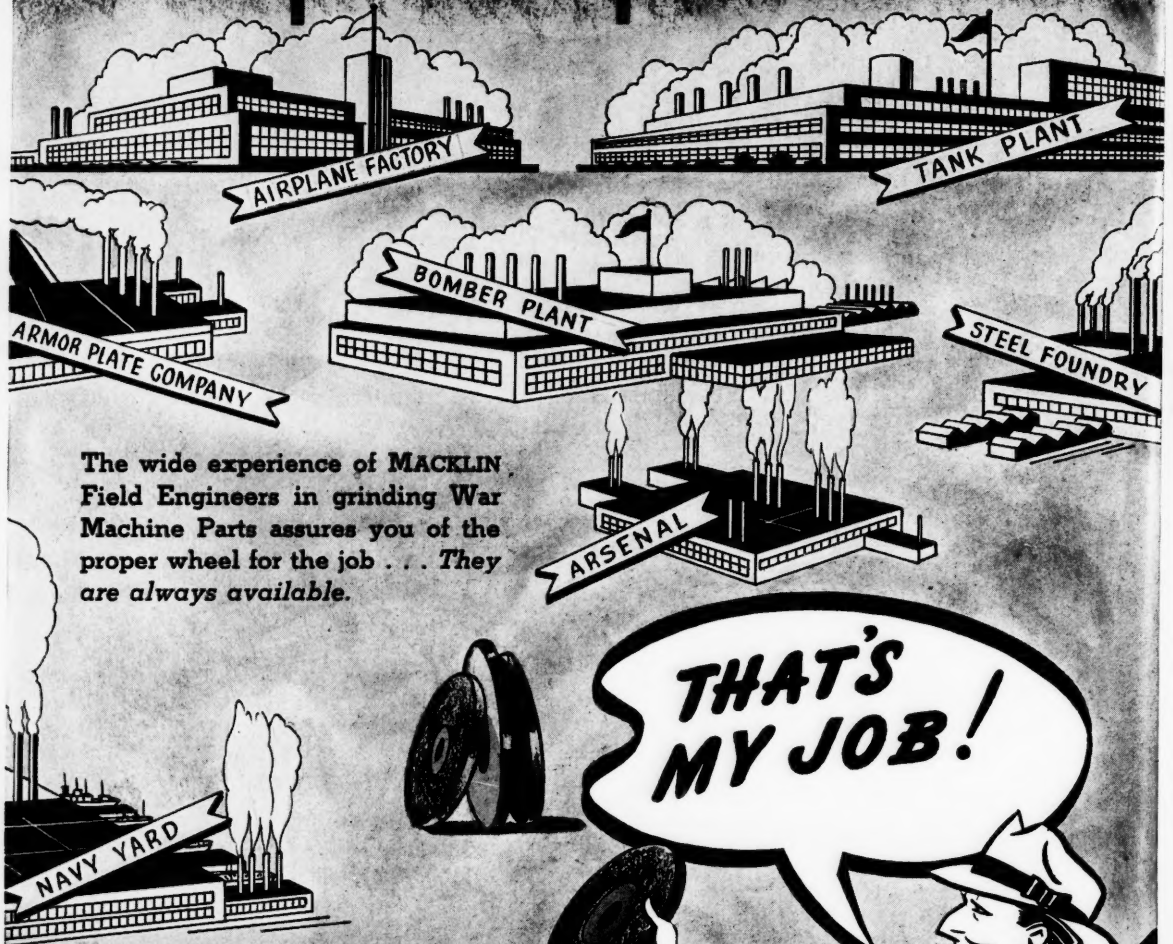
# MANUFACTURERS RECORD



**Every useless govern-  
ment employee, is as  
much a menace to our  
war effort as a Ger-  
man, Jap or Italian.**

# MACKLIN

Grinding Wheels



The wide experience of MACKLIN Field Engineers in grinding War Machine Parts assures you of the proper wheel for the job . . . They are always available.

THAT'S MY JOB!

## MACKLIN COMPANY

Manufacturer of Grinding Wheels

JACKSON, MICHIGAN, U. S. A.

Sales Offices

CHICAGO - NEW YORK - DETROIT - PITTSBURGH  
CLEVELAND - CINCINNATI - MILWAUKEE  
PHILADELPHIA

MACKLIN  
FIELD  
ENGINEER



# Performance

SPEAKS THE  
FINAL WORD IN TIMES  
LIKE THESE!

**T**HE picture isn't pretty . . . but the performance is magnificent! Pumping raw bone gelatin stock is just about as tough a pumping job as there is. That is why the Atlantic Gelatin Company, when ordering this Fairbanks-Morse Pump and Splashproof Motor Unit specified that the unit had to make good — or else!

It did. Two months after installation, the Atlantic Gelatin Company ordered another unit just like it. Three years later it had a *three-year record of perform-*

*ance without any time out for repairs!*

That kind of performance is never the result of luck or circumstance. It is *built in at the factory.*

Use your priority to get Fairbanks-Morse Pumps for your war production job. Because of mechanical superiority, they retain their efficiency after less highly engineered pumps begin to waste power. Buy for today's job — yes — but with an eye for tomorrow, too. Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago.

## FAIRBANKS-MORSE



PUMPS  
DIESELS  
MOTORS  
SCALES

NOVEMBER NINETEEN FORTY-TWO

3

# NOW! Coal-Fired, Self-Contained,

## DRAVO DIRECT FIRED HEATERS

... to meet the  
Present Fuel Situation

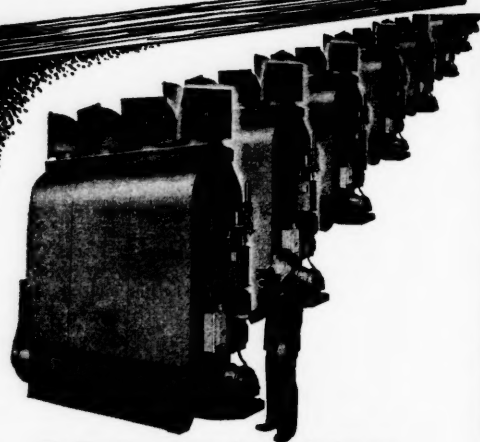


Coal burning Dravo Direct Fired Heater, rear fired application with ash removal doors on opposite end. All models can be fired from either end.

**T**HIS coal-burning heater is a self-fired unit containing its own combustion chamber as well as the motors and fans to circulate warm air in the space to be heated. It is a "life saver" for those sections of the country where coal is the only available fuel. One or more heaters of this type can be arranged to provide working temperatures for any size or shape of industrial building. Such a system offers advantages of quick installation, lower cost than central steam plant, and flexibility in use to provide temporary heat or a permanent heating system.

*Note*—the heater shown above is hopper fed; bin fed models are also available; 9 sizes of self contained units, output capacities from 1,000,000 to 4,000,000 B.t.u. per hour.

Write to us for catalog and specification sheets on types you wish to consider.



The War Tempo demands methods that save man hours, materials and money. Dravo direct fired Heaters start warm air in circulation at the snap of a switch. High heat transfer efficiencies make them most economical to operate. Fuels are gas, light and heavy oil, coke oven gas, and anthracite or bituminous coal.

### DRAVO CORPORATION

HEATER DEPARTMENT

DRAVO BUILDING

Sales Offices in Principal Cities

PITTSBURGH, PA.



# MANUFACTURERS RECORD

Established 1882

## CONTENTS

NOVEMBER, 1942

Volume 111, Number 11

### EDITORIALS

Things That Interest Us .....	6
Let George Do It .....	17
The Uncertain Sound .....	19

### FEATURE ARTICLES

What About Tin .....	20
Post-War Competition by Clyde G. Conley .....	23
All-Welded Shipbuilding .....	24
Railroads Carry-On by Samuel O. Dunn .....	26
Camouflaging Industrial Plants by Frank G. Beury .....	28
North Carolina's Booming Mica Industry by Bille Sharpe ....	30
South's Construction Contracts over 3½ Billion Dollars in Ten Months by S. A. Lauver .....	32
Subcontractors Wanted .....	34
New Priorities Put in Effect During October .....	35
Important New Industrial Plants and Expansions in the South During October .....	36

### DEPARTMENTS

New Methods and Equipment .....	42
Industrial News .....	44
Trade Literature .....	44
Index for Buyers .....	64
Index of Advertisers .....	66

#### MANUFACTURERS RECORD PUBLISHING CO.

Other publications: *Construction* (daily), *Construction* (monthly) and *Blue Book of Southern Progress*.

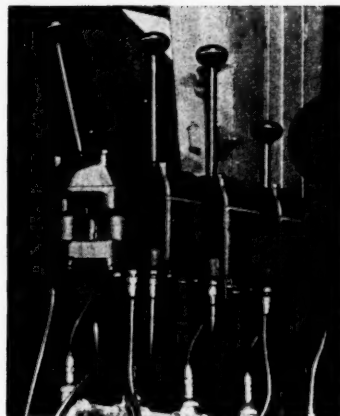
Main Office: Candler Building, Baltimore, Md.  
Phone: LExington 7065

Branch Offices: New York—393 Seventh Ave., Room 1615. Phone: Penna. 6-2615.  
Chicago—28 East Jackson Blvd., Room 712. Phone: Harrison 5867.  
Cleveland, O.—Caxton Building, Room 801. Phone: Main 3341.

Subscription Rates: One Year \$2.00. Two Years \$3.00.  
Single Copies 25c, back numbers over 3 months old 50c.

Entered as second class matter at the postoffice, Baltimore, Md., U.S.A., under act of March 3, 1879. Volume 111, Number 11 Monthly.

## Remote Control SYSTEMS for Industrial Use



**C**OMPRESSED air, because of its inherent power, flexibility, and adaptability can be utilized to perform many functions on industrial equipment with greater speed, safety, dependability, and productiveness, than by ordinary manual or mechanical means... Effortless manipulation, greater convenience, remote control, and co-ordination of many operations in proper sequence are made possible by this noteworthy development—the "Flexair" Valve.

Available in a variety of forms, with one or many functions, this valve facilitates operation of clutches, mechanical movements, or other devices. A group of "Flexair" valves controlling a multiplicity of inter-locked operations on an excavator, is shown in the illustration.

Our engineers will be glad to cooperate in analysis and development of a system to solve your particular operating problem... Such a system will be complete with Westinghouse "Flexair" Valves, air compressors, tanks, operating cylinders, "Savari" cocks, etc.—devices that embody distinctive features evolved through 73 years experience in designing and building pneumatic control apparatus.

Westinghouse . . . .  
**AIR BRAKE CO.**  
Industrial Division  
PITTSBURGH, PA.



When Hitler's packs of undersea wolves struck at domestic shipping along our shores, he forgot about the American railroads — and thereby started driving more spikes into his coffin.

When Axis submarines struck, the Nation's railroads were called upon to move the major part of the oil supply for the East from Southwestern producing centers; to bring Pacific Coast lumber and the bulk of Pacific Coast canned goods to the East; to more than double the all-rail movement of bituminous coal from Southern Appalachian fields into New England; and to transport many other unexpected and unaccustomed loads. Result: today, the greater part of coastwise and intercoastal traffic is being moved safely and efficiently by the all-rail route, and hundreds of vitally needed tankers and other ships have been diverted direct to war purposes.

The Norfolk and Western Railway is carrying its full share of that essential traffic which formerly moved by water. Here's just one example: during the first eight months of 1942, this railroad moved over its Shenandoah Valley line — Roanoke, Va., to Hagerstown, Md. — approximately 2,000,000 tons of bituminous coal consigned to Northern and New England States — 2,000,000 tons of coal diverted from the Port of Norfolk and the water route to N. & W. rails — rails that are out of your range — Nazi.



**Norfolk and Western**  
*Railway*

PRECISION TRANSPORTATION  
CORP. 1942 N. & W. RY.

## Things that interest us

The MANUFACTURERS RECORD has always been an industrial and business magazine. However, since 1932 Government has thrust itself upon business to such an extent that it has been impossible for us to ignore the effect of such a policy.

Government is now a part of business. Whether it was invited by business to become a partner in the days of N.R.A., or whether it invited itself is past history. The fact is that Government is a partner who lays down the rules and collects most of the income.

Labor too has surrendered its rights to cooperative negotiations, and has put in the saddle a set of political racketeers to whom it is now beginning to bow.

Farmers have sedulously sought, through lobbies of their own selection, to regulate farm prices, and by so doing have, through these same lobbies, placed themselves in the hands of political groups by whom they are now being regulated.

Realizing the above facts, it is very interesting to observe the results of the recent election. It reflects a note that has not been heard in elections in America for more than a decade. It injects a note of personal independence into the tune of national thinking to replace the modern pipe of Pan. American people now realize what their sons and brothers are facing in the fight for their lives against a force that would destroy the ideals of freedom of thought, of expression, and of individualism, and they cannot fail to rejoice in this restoration of American character through representative government which this election signifies.

The following item, which was sent to us recently, attracted our attention not only because it was interesting but because it is believed to be the first time in this country that women have been so employed in the coal tipples.

"As all draft boards are doing their part to fill the quota of selectees requested of them, this has resulted in a shortage of labor in and around coal mines."

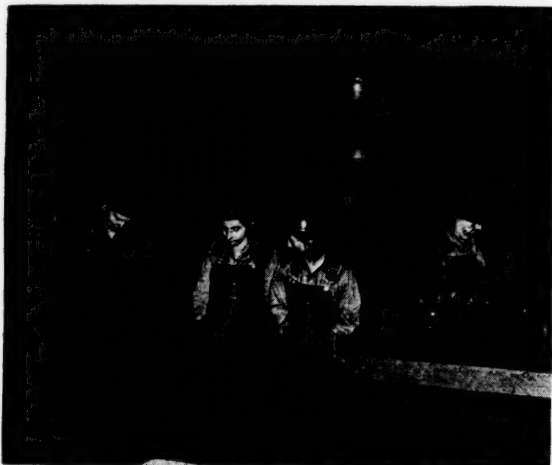
"Women have now taken their part in the mining industry and are replacing men as slate pickers in the tipples of The Algoma Coal and Coke Company at Algoma, McDowell County, West Virginia. They are paid the scale rate of \$5.15 per seven hour day and are proving very efficient in this particular work. These women are doing a man's work and each one hired releases a man for active service. They are also required to wear the regulation equipment or clothing consisting of hard hat and hard toed shoes. They also wear overalls, shirts and overall jackets. So far,

MANUFACTURERS RECORD FOR

they seem to like their work and hope that it will last indefinitely."

"From a good authority it is stated that Russia requires the coal mines to hire 20% women in and around the mines. There are no women working in the mines in West Virginia, and probably never will be as this work is almost too hard for the average woman to perform."

"As the labor shortage becomes more acute it is expected that other companies will soon be following the same procedure in procuring employees in their tipples. Women, old and young, are replacing men called for active duty in our armed forces in a large number of the major industries. They are doing their work efficiently and are either keeping the production running along smoothly or are stepping it up quite a bit in some instances. Their one aim seems to be that they turn out the needed supplies and machinery to keep our army and navy fully equipped."

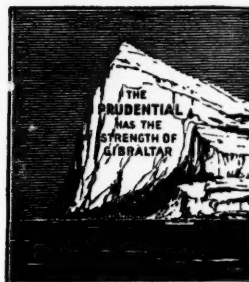


"All industries have been hard hit by the induction of so many of their employees into active service, particularly so in the coal mines in West Virginia. As all ages of men have been employed in different kinds of work around the mine, it has crippled the production to a great extent just at the time when there is such a demand for bituminous coal. Men, women and children in the coal fields are doing their part in the war effort by helping in all kinds of work that will give the production of war materials a forward boost. Boys and girls are gathering scrap metals, women are giving up their housekeeping for the duration in order to fill the vacancies when husbands are called into the service. Old men are going back to jobs that they once thought would never be offered to them again."

"The women of this country see that upon their shoulders rests the burden of keeping the home fires burning, the factories humming, the children well clothed and fed, and most important of all, helping keep the morale of all of us to the highest point. More power to them in this critical time and let's hope that they will have the strength and fortitude to bear up under the strain of so many jobs to be done for the duration."

## Keep Them Safe

All too often, when a man dies, his loved ones face a threat to their financial welfare. When you are well insured your family will never know that fear.



**The Prudential**  
**Insurance Company of America**

Home Office, NEWARK, N. J.

# S

Known and used for more than 4000 years, sulphur has now become a primary ingredient of production. In one form or another, this brilliant yellow mineral has something to do in the manufacture or processing of almost every industrial product, many of them vital to our war effort.

Sulphur is used in agriculture. It is involved in producing high-octane fuel for planes, steel for ships, gasoline and lubricants, vulcanized and synthetic rubber, many chemicals, explosives, pulp and paper, paint and pigments, rayon and cellulose fiber, textiles, dyes, coal-tar products.

The greatest source of sulphur supply in the United States is the deposit along the Gulf of Mexico in Louisiana and Texas. There Southern industry annually produces more than two and one-half million tons of sulphur—all except about 6000 tons of the country's total production. All mining is done by

pumping superheated water through a complicated system of pipes into the sulphur-bearing strata. The melted sulphur is then pumped to the surface and into great bins, where it is allowed to harden before being blasted down for shipment.

Sulphur is not the only valuable mineral that originates in the South. The country's entire supply of aluminum-yielding bauxite is concentrated in the Southern states. Iron ore is being mined in increasing quantities. Even deposits of tin have been discovered, although the quantity of ore extracted has been small.

Bethlehem Steel Company has long supplied large tonnages of steel to the South. The rapid upswing of activity throughout the South, its fast-growing volume of production of both raw and finished materials of war, underlines the importance of Bethlehem's service to Southern industry and agriculture.

**BETHLEHEM STEEL COMPANY**





*Records  
like this.*

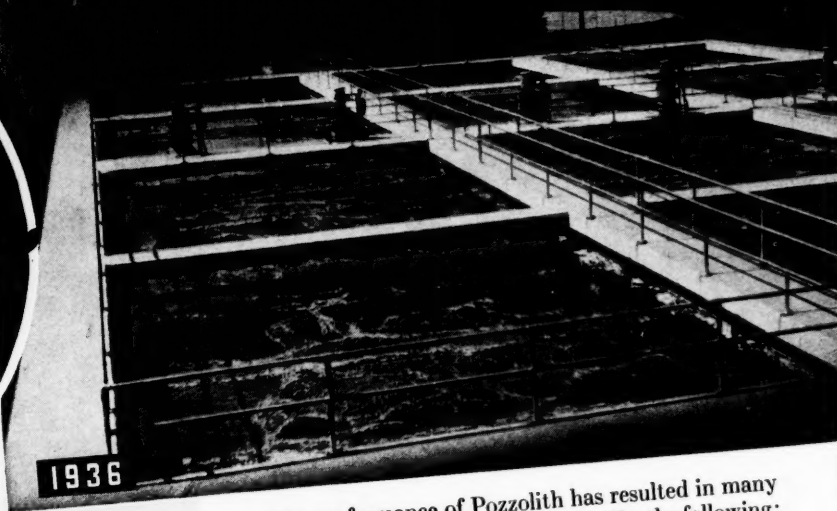
show why

**POZZOLITH**

(CEMENT DISPERSION)

WAS USED ON PROJECTS

*like this..*



The performance of Pozzolith has resulted in many statements from leading engineers like the following: June 5, 1942—"In the construction of the Mansfield, Ohio Sewage Treatment Plant, built in 1936, Pozzolith produced a dense, waterproof concrete of high strength yet having sufficient plasticity for easy placing... Recently all of the concrete was cleaned and inspected and found to be in sound and perfect condition. There has been no disintegration, either from frost or sewage action, not even at the waterlines."

GEORGE B. SOWERS, Consulting Engineer.



Vitally needed for the production of war implements and materials, plants like this one "somewhere in the South", have been ready to operate many days earlier because Pozzolith concrete was used to speed construction.

In addition to speeding project use, Pozzolith makes possible substantial savings in both construction and materials cost.

Leading engineers and builders know that Pozzolith helps meet all concrete requirements.

**W**HETHER in vital defense plants or important public works construction, Pozzolith produces benefits of major consequence.

Its action resulting from the use of the specific *dispersing agent* for cement, Pozzolith measurably increases the efficiency of all concrete. Greater concrete efficiency means better concrete, faster construction, and lower construction and materials cost.

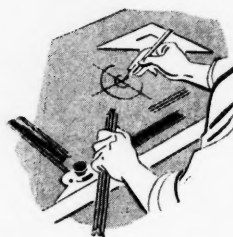
Write for illustrated Pozzolith booklet and Research Papers No. 36—"Economics of Cement Dispersion" (for mass concrete) and No. 39—"Cement Dispersion and Air Entrainment" (for runways and pavement).

**THE MASTER BUILDERS COMPANY**  
CLEVELAND, OHIO    TORONTO, ONTARIO

**MASTER  BUILDERS**



The future  
is what we're fighting for,  
isn't it?



Every reader of this advertisement believes, somehow, that the future is worth the fight. Production records say so. Your personal sacrifices say so. Your crowded hours say so.

We read your hearts as we read our own.

But what about this future, anyway? Are we going to accept it as it is served up to us, or are we folks in industry going to do a job of pre-fabrication on it?

We can, you know.

We *can* do some Imagineering, here and now. We *can* decide where we go from here. We *can* slip an eighth day of thinking time into our crowded seven-day week, if we will.

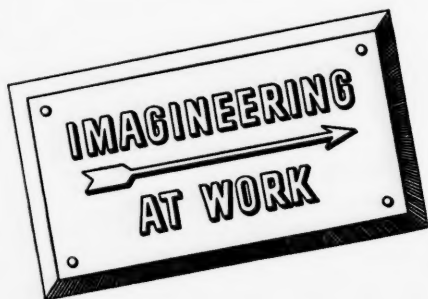
We can build new models, in our minds at least. We can take the facts and the promise of the new materials and methods we are learning about in the war, and dream them into the new products and improved services that will make new jobs.

We can even provide the wherewithal which will prime the future. Every War Bond we buy does that.

The future is more than a hope. It is a duty.

Getting together on future ideas is putting Imagineering into practice.

Might you and we do just that, for the sake of the boys who are fighting to give us all a future? ALUMINUM COMPANY OF AMERICA, 2109 Gulf Bldg., Pittsburgh, Pa.



ALCOA ALUMINUM



# AIR RAID SHELTER



**. . for your water supply**

**N**atural enemy target would be the water supply line of a sighted community. Against the threat of air attack or sabotage—your safest shelter lies in steel-reinforced concrete.

Lock Joint Pipe can take it! Its underlying strength rests in the solid toughness of its dense concrete walls—in its cylindrical steel skeleton ribbed with bars of steel—in the flexibility of its self-caulking joints. Each unit of a Lock Joint Pressure line is a thick-walled bulwark of defense against terrific vibration and shock. Nor are those sub-surface enemies, corrosion and tuberculation, able to successfully attack the hydraulic efficiency of a Lock Joint supply line. Never—in the 37 years of our history, in all the lengths of our pipe lying throughout the world—has there been a failure. Construction and design make Lock Joint Pipe your safest, surest investment today—yet Lock

Joint Pipe uses less of those essential materials so necessary to our War effort. Whether your project is large or small, play safe with Lock Joint Reinforced Concrete Pressure Pipe. Your 'phone call, telegram, cable or letter to any of our offices will bring an immediate response.

## LOCK JOINT PIPE COMPANY

*Established 1905*

**AMPERE, NEW JERSEY**

Denver, Colo. • Chicago, Ill. • Kenilworth, N. J. • Kansas City, Mo.  
Rock Island, Ill. • White Plains, N. Y. • Valley Park, Mo.  
Cleveland, Ohio • Hartford, Conn. • Navarre, Ohio

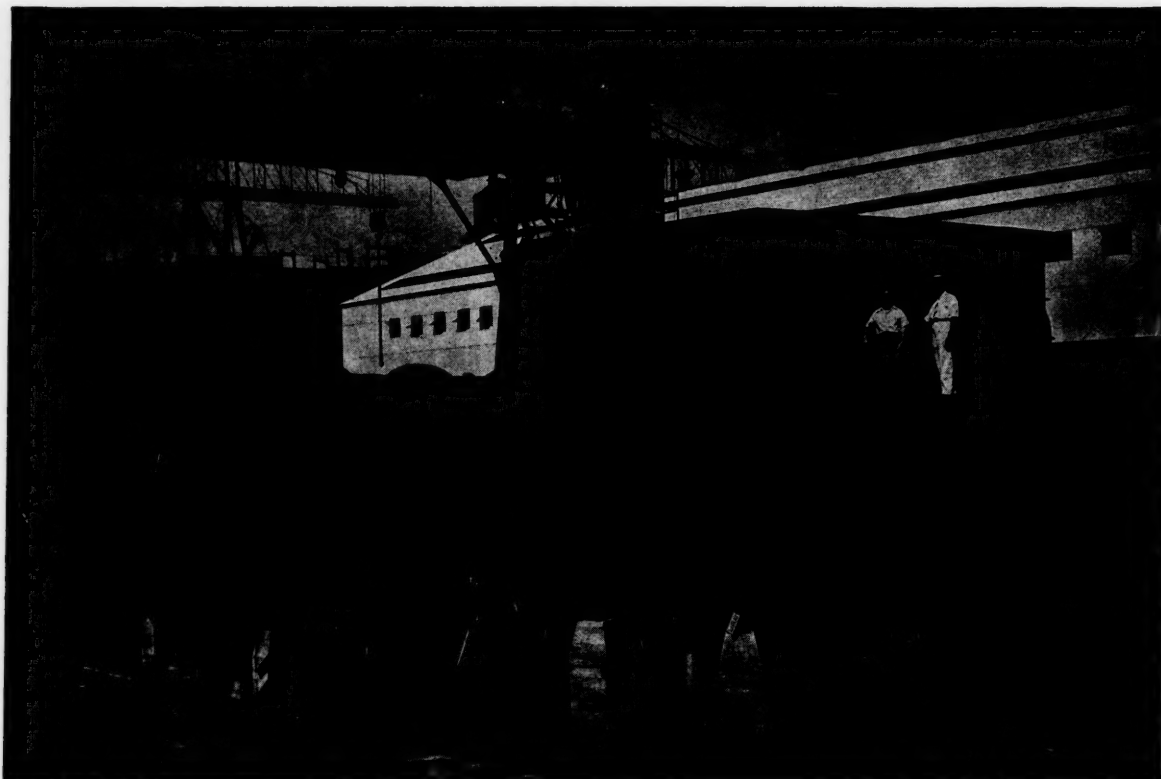
### SCOPE OF SERVICES

*Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply Mains as well as Concrete Pipe of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous lines.*



NOVEMBER NINETEEN FORTY-TWO

11



# **150,000 HP Francis Turbine for Grand Coulee Project**

*(SHOP HYDROSTATIC TEST—230 LB. PER SQ. IN.)*

## **HYDRAULIC TURBINES**

*Francis and High Speed Runners*

*Butterfly Valves*

*Power Operated Rack Rakes*

*Gates and Gate Hoists*

*Electrically Welded Racks*

**Newport News Shipbuilding and Dry Dock Company**

*(Hydraulic Turbine Division)*

**Newport News, Virginia**





*Call Scully for*

## NATIONAL EMERGENCY ALLOY STEELS

To save critical materials such as nickel and chromium, "National Emergency Alloy Steels" have been developed as substitutes for the old style alloy steels. These new alloy steels cover a wide range of properties and were especially designed to meet present conditions. Many of them are actually outperforming the steels previously used.

Our stock of these "National Emergency Alloy Steels" is now coming in. We welcome your inquiries and orders and would be happy to assist you in determining the grades best suited to your needs.

Telephone, wire or write the Scully Warehouse nearest you—see phone and teletype numbers above.

**Do you lack** steel to complete a rush war job? Is your production in danger of being slowed down or stopped for want of some piece of steel or steel product? Then call the nearest Scully warehouse. Many such calls have kept wheels turning. If we don't have what you need, you can be sure that we'll do everything possible to help you get it.

Our first job, like yours, is to speed war production. Every one of our warehouses is on the job day and night. And although our stocks of steel are not what we wish they were, what we have can be yours in a hurry—subject, of course, to priority restrictions. So try Scully—note our phone and teletype numbers above.

**Scully  
Service**



## SCULLY STEEL PRODUCTS COMPANY

*Distributors of Steel and Steel Products*

Warehouses at CHICAGO  
ST. PAUL-MINNEAPOLIS

NEWARK, N. J.  
CLEVELAND

ST. LOUIS  
PITTSBURGH

BOSTON  
BALTIMORE

# UNITED STATES STEEL

NOVEMBER NINETEEN FORTY-TWO

13

# -like Daddy says . . .

AMERICA of the future will be a place for freedom-loving men and women—"daddy says it will."

Why? Because we who know what freedom means will not accept the *Japanazi* way of life. And we will gladly make the sacrifices . . . pay whatever price necessary to protect our precious heritage.

The Gulf South, with all its rich resources, with the might of all its industries, with the power of all its patriotic citizenry, is concentrating on one single objective—WINNING THE WAR.

Natural Gas, a part of America's industrial army, is fully appreciative of its responsibilities in this all-out war. Natural Gas will help destroy the terrifying threat of slavery and brutality—will continue to fight until final Victory. Night and day our vast pipe line system and the energies of all our employes will continue to make the winning of the war their No. 1 job!



BUY WAR BONDS . . . HELP AMERICA'S VICTORY

## The Gulf South

Working with All America for VICTORY

This Advertisement Published By

### UNITED GAS PIPE LINE COMPANY



A Natural Gas transmission Company built in peacetime . . . now dedicated to serve wartime fuel requirements throughout the Gulf South.

FOR TEXAS, Mail received at: Beaumont, Dallas, Fort Worth, Houston, Longview, San Antonio and Wichita Falls. FOR LOUISIANA, Mail received at: Baton Rouge, Lake Charles, Monroe and Shreveport. FOR MISSISSIPPI, ALABAMA and FLORIDA, Mail received at: Jackson, Miss.

COPR., 1942, UNITED GAS PIPE LINE CO



# WHAT'S YOUR BOTTLENECK?

The  
industries of  
**JACKSONVILLE**  
Florida have pooled their  
equipment, their skill, their  
resources and their labor  
to help

## SOLVE YOUR BOTTLENECK

They believe that Jacksonville can  
handle at least three times as much war  
work as it now has.

### Learn Today How Jacksonville's Plants Can Help You!

A competent industrial engineer is  
available to study your particular prob-  
lem and give FREE specific advice.

Send coupon below at once!

**POOLING DIVISION, Dept. E**  
Jacksonville Chamber of Commerce  
Jacksonville, Florida.

Please send me information on the pools checked below:

- ☐ MACHINE SHOP
- ☐ MILL WORK
- ☐ TRUCK AND TRAILER BODIES

- ☐ SHEET METAL
- ☐ CLOTH
- ☐ BOATS AND BARGES

NAME \_\_\_\_\_

COMPANY \_\_\_\_\_

STREET AND NO. \_\_\_\_\_

CITY \_\_\_\_\_

STATE \_\_\_\_\_

## *Black-out the Picture*



## *But the Facts Remain*

Concerning the construction record of a plant somewhere in the South which ranks high in importance to America's offensive striking power—a plant which has produced the material equivalent of many hundreds of bombers since Pearl Harbor.

In less than six months after the field was cleared this huge plant was erected and in operation, representing an amazing record of coordinated performance. Our part in making this achievement possible was the furnishing and erecting of more than 3000 tons of structural steel a pace ahead of a fast moving schedule.

But it is only one of the many plants now producing, or near production of the essential materials of war because of Virginia Bridge engineering, fabricating and erecting performance. The full weight of our resources, experience and effective cooperation are squarely behind the biggest construction program in history that it may be completed in the shortest possible time.

## **Virginia Bridge**

**STEEL STRUCTURES**

**All Types**

### **Plants:**

**Roanoke, Va.**

**Birmingham, Ala.**

**Memphis, Tenn.**



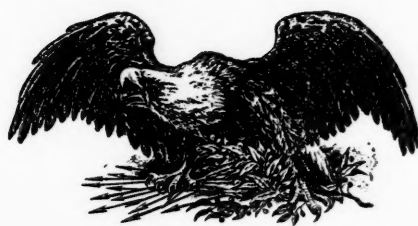
**VIRGINIA BRIDGE COMPANY**

*(South's Largest Structural Steel Fabricator)*

**Roanoke   Birmingham   Atlanta   Memphis   New York   Dallas**

**UNITED STATES STEEL**





---

## LET GEORGE DO IT!

Who is going to win this war—you or George? Or is George going to lose it because you are too thoughtless to help him?

Who is George?

He is just the other fellow who is expending his time and energy while others try to forget that the nation is in peril.

He is the business man who takes on additional responsibilities and duties without thought of personal recompense.

He is the workman who produces to the limit of his ability and does not quibble about hours worked.

He is the farmer who plants his acres with needed crops irrespective of the price they will bring, and handicapped because of the shortage of help, lives by the sweat of his brow and supplies the food that keeps the rest of us living.

He is the miner who digs the coal and metals and loads the most cars.

He is the scientist who works tirelessly in his laboratory.

He is the doctor and the lawyer who have taken on the burden of colleagues who have entered the services.

And last, but quite obviously not least, there are the Georges who now carry rifles, man tanks, fly planes and sail ships in all parts of the world.

How about you?

Is your name George?

THIS IS WORTH FIGHTING FOR..



## *The right to govern ourselves*

**B**RAVE AND DETERMINED Americans left bloody footprints in the snow at Valley Forge, to give us the priceless right to run our country as the majority of us think it should be run.

Today, equally resolute and courageous Americans are fighting to preserve that hard-won heritage—for themselves and for their children. They know that in the Axis nations people are mere puppets bowing to the brutal whims of fanatical dictators.

That's why Americans are fighting. And, as they fight on to certain Victory, they are inspired by an unshakable determination that this government shall continue to be "of the people, by the people, and for the people."

The Southern Railway System, because of its strategic location, is playing a tremendously vital role in the transportation of war materials and fighting men. But it is doing more than that. It is also helping to keep the wheels of our national life rolling in defense of the home front. It is grimly but willingly taking on burden after burden—because it's a rich privilege to serve the nation in times like these.

When private automobile travel began to be curtailed by tire and gasoline rationing—the kind of travel that normally accounts for more than four-fifths of all inter-city travel—the railroads took on the thankless job of providing substitute transportation. That meant more trains, more cars per train, more locomotives,

crowded stations, and a thousand headaches! But the job is being done—on top of the major task of handling hundreds of thousands of Uncle Sam's soldiers, sailors and marines.

When the oil shortage developed in the eastern states, the railroads said that they could move 200,000 barrels a day to meet the emergency. They are now moving more than 800,000 barrels a day. In the first eight months of this year, the Southern Railway System handled more than 19,000,000 barrels of oil to the North and East.

These are simply examples of how one railroad is doing its bit to protect our way of life; our heritage of freedom; our right to govern ourselves.

From this experience, a better Southern Railway System will emerge—more efficient and more useful to the people it serves than ever before—because, even during these trying times, we are taking advantage of every opportunity to improve our services, facilities and methods; every opportunity to plan for a better tomorrow when Americans will continue to hold their heads high as free men, proud in the knowledge that their children, too, will enjoy the blessings inherent in a nation of self-governing people.

That is worth fighting for!

*Ernest S. Harris*

President.

SOUTHERN RAILWAY SYSTEM

THE SOUTHERN SERVES THE SOUTH

MANUFACTURERS RECORD FOR

# THE UNCERTAIN SOUND

*For If The Trumpet Give An Uncertain Sound,  
Who Shall Prepare Himself To The Battle?*

I CORINTHIANS, 14-8

The people are confused about many things connected with the war effort—the evasions, the contradictions, the reiteration of objects other than the utter and quick defeat of the enemy.

It is well to speak of "Four Freedoms." It is well to tell the world, as we have before many times, that we as a nation have no territorial ambitions and that we believe in the doctrine of "live and let live," but with the face and purpose of America set toward war and victory, it is well to know this is not a nation of children.

Mr. Harry Hopkins may think "the public is too damned dumb to understand," but he is wrong. We are a thinking people. We have a way of doing what we set out to do, but it seems that our leaders, while accusing the public of complaisance, are still intent upon "a more abundant life" and "free social co-operation."

The trumpet is giving an uncertain sound while useless jobholders clutter the scene by hundreds of thousands and Washington has become a madhouse.

The only note that persists and pervades in the bedlam is money—money—money.

Tell us what for. Tell us what to do without and why. Ask us to sacrifice, but make the reasons clear and not obscure by the contradictory imaginings of bureau chiefs.

Draft us for fighting or war production—men and women—but do not give us in place of implacable leadership for victory political expediency that thinks in terms of votes.

The people are in the war to win and win at any cost. Talk to the fighter in the Army or Navy about "social gains," and hear what he says. They want to win first and talk of other objectives later.

And they have a right to point out obstacles. They have a right to object to the tactics of pressure groups which have strange success in Washington at this time of crisis.

The sound the trumpet is giving is uncertain and the people know it.

# WHAT ABOUT TIN?

**W**HEN the Japanese over-ran the Malay Peninsula and the East Indies early this year they seized an area that produced almost three quarters of the world's tin supply and the bulk of its smelting capacity as well.

This might have been a body blow to the United Nations. Without tin no airplane could fly, no tank could roll into battle. Tin is the solder, the adhesive that binds wires and carburetors and cylinders into fighting machines. Tin preserves the food that soldiers eat.

Tin for British Spitfires depends on the rainfall in Nigeria and on using what water there is to the limit. More tin for MacArthur's forces depends on the skill of Malayan miners evacuated to Australia.

These are just two of many elements in a world-wide battle for tin under the general direction of the Combined Raw Materials Board that involves new mines, new methods of production, new smelters, new shipping routes, new measures of conservation and salvage in many countries.

## Nigerian Rainfall is Essential for Tin

What has the rainfall in Nigeria got to do with British Spitfires? You have to have water to wash tin ore just as you have to have water to wash gold. In the tin-producing section of Nigeria the ores are rich but water is scarce much of the year. The few rains come only from May to September. Every bucketful is hoarded and used over and over again until it is so thick with impurities you can pick it up by the handful. An extra inch or two of rainfall can mean many hundreds more tons of tin for the weapons of war. No farmer in Kansas ever prayed harder for rain than the miners in Nigeria. Lacking extra rain, equipment that makes it possible to use the water longer also means more tin.

## Malayan Tin Miners Help Develop Australian Mines

What have Malayan tin miners got to do with General MacArthur's armies? Malayan tin miners are the most skilled in the world. Hundreds of them were evacuated as Malaya was falling and shipped to Australia to help develop Australian mines and thus make the Australian factories which assist in supplying MacArthur independent of the western world for tin.

The tin problem is common to all the United Nations. It is not one that could be met by any of them alone. The cause of all depends on quick and concerted action in many parts of the world and on many different fronts to get enough tin for war production and cut civilian consumption to the essential minimum.

The Combined Raw Materials Board was created to deal with such situations. The United States and Great Britain are represented on the Board and its job is to coordinate and recommend combined action to serve the raw material needs of all the United Nations. The programs are carried out by the operating agencies of the British and American Governments in accordance with the Board's recommendations.

## Joint Action to Assure Capacity Production

Long before Singapore surrendered a re-examination of United Nations' tin requirements and resources was already underway and one of the Combined Board's first acts after its establishment was to recommend a broad program based on its findings. To increase production, the Board recommended measures to assure capacity operation of the Bolivian mines, the biggest producers remaining within the United Nations' control. These are being carried out. Other areas of supply in Canada, South America, Africa and Australia are also

being developed and production expanded. Even some of England's ancient Roman mines, first worked 2000 years ago and then neglected as richer areas were opened up in the late nineteenth century, have once again been put into production. Men have sweated and toiled to transport new machinery into remote Nigeria. Ore extracting equipment has been sent on the long sea journey from the United States to Australia.

## Texas City Tin Smelter Expanded

Lack of smelting capacity was as critical as the reduction of tin ore resources. Tin ore in itself cannot be made into weapons of war. Tin must be smelted. Building up new supplies of ore without building the plants in which to smelt it would be no more helpful to beating Hitler than digging up earth and leaving piles of its around. The Board first recommended immediate and sharp expansion of the capacity of the Texas City tin smelter. As a result this smelter will be able to produce at the rate of 52,000 tons annually by the end of this year.

This action made possible allocation of a major share of Bolivian tin ore for direct shipment to the  
(Continued on page 22)

*The western hemisphere's only tin smelter, which at the time it was first announced was estimated to involve expenditure of \$3,500,000, and later revised upward to \$6,500,000, is pictured at the top of the opposite page. Deciding factors in its location at the Texas site chosen were low cost gas for fuel, availability of hydrochloric acid and transportation advantages. The furnace building houses seven furnaces. Other views give an indication of the plant's interior appearance when recently inspected by Jesse H. Jones, Secretary of Commerce and Federal Loan Administrator, as expansion of present capacity moved ahead. Molten slag is poured into a vat from the tapping side of the smelting furnaces (at bottom left) as Mr. Jones discusses the operation. In the photograph (at left center) he examines the crushed Bolivian ore. J. van den Berg, vice president and general manager of the Tin Processing Corp., American subsidiary of Dutch tin interests, and operator of the new plant, faces Mr. Jones near the roasting kiln.*



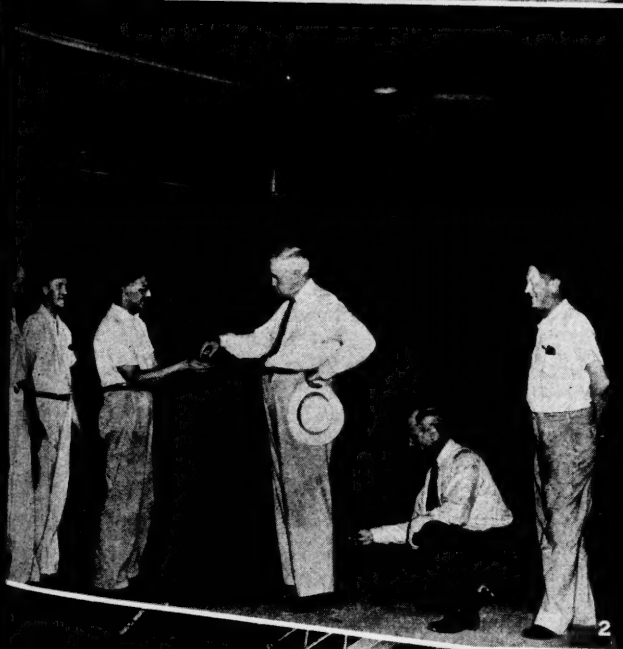
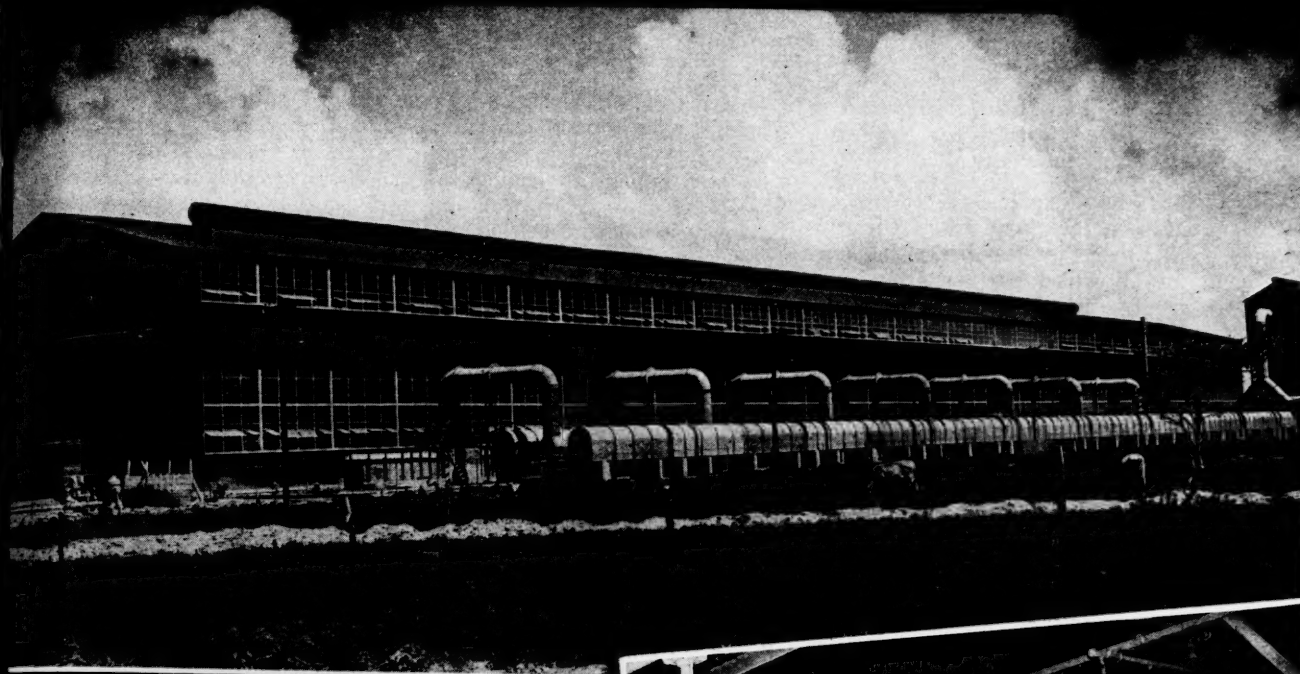
ection  
and's  
orked  
ected  
up in  
have  
oduc  
coiled  
into  
ecting  
the  
nited

was  
f tin  
can-  
war.  
g up  
uild-  
elt it  
beat-  
earth  
und.  
l im-  
n of  
y tin  
elter  
rate  
end

allo-  
vian  
the

smelt-  
at an-  
e ex-  
vised  
t the  
fac-  
site  
vaila-  
spor-  
lding  
give  
r ap-  
by  
nerce  
s ex-  
thead.  
n the  
s (at  
the  
left  
vian  
and  
ssing  
h tin  
lant,  
kiln.

O R



## What About Tin?

(Continued from page 20)

United States, which previously had almost no smelting capacity. It saved shipping time, reduced the danger of loss by submarine and provided new smelting capacity further from the fighting lines than Britain's smelters.

The Belgian Congo is also an important tin producer and possesses considerable smelting capacity. In order to supplement the tin smelted at Texas City the Board allocated most of the Congo's smelted tin to the United States and on its recommendations equipment was shipped to make possible increasing output from Congo smelters.

In addition the United States gets tin ore from Alaska and the French Cameroons and Mexico's exportable surplus. Tin ore from Nigeria, South Africa, and other areas has been allocated to Great Britain.

Allocations from United Kingdom supplies are slated for Russia. New Zealand is being supplied with tin by the United States until Australian capacity has been increased sufficiently to do the job.

Measures also have been recommended making for maximum conservation in the use of tin to the governments of both the United Kingdom and the United States.

Paper cartons or glass jars are replacing tin cans in kitchens and many other ordinary civilian uses have been reduced or eliminated. The Board has secured a running interchange of information between the two countries on the use of substitutes and changes in military specifications where possible. In addition full information is being made available to the other United Nations to assist them in enforcing similar conservation measures.

An example of conservation is this year's demand for tin for cans, over 21,000 long tons, which will be cut almost in half in 1943 by a program now under way to use electrolytic tin plate and bonderized black plate in place of the hot dipped tin plate now used.

Peace-time practice was to make cans from hot dipped tin plate having 1.5 pounds of tin per base box or about 100 pounds. Under pressure of wartime conservation, hot dipped plate was reduced to 1.25 pounds of tin per base box where such plate is applicable.

Electrolytic tin plate had been in limited use for several years, mostly for dry-packed products. The production process is a de-

*The tin being inspected by Secretary Jones and piled high behind him ranks with the nation's gold supply buried in a Kentucky mausoleum and the silver reposing in New York vaults.*

posit of pure tin on steel black plate by electrolysis, similar to nickel or chromium plating. Experience has proved that electrolytic tin plate can be made with as little tin as 0.1 pound per base box, contrasted with 1.5 pounds of tin in old-fashioned hot dipped plate. Experiments showed that a tin deposit of 0.5 pounds per base box was, however, more practical for most purposes, and it is on this basis that most of our new electrolytic tin plate is being made.

A second important means of getting cans, and at the same time reducing the amount of tin required, is bonderized black plate. This is a process of treating the surface of the steel to make certain lacquers adhere to it firmly enough to prevent corrosion by the substance packed.

The kind of plate required in cans varies with the substance to be packed. Some products need the 1.5 pounds-of-tin-per-base-box, and it is claimed that they cannot be packed successfully in less. About 5 per cent of our cans must be of this type. These are usually for packing the more acid or corrosive substances. Other products can be packed satisfactorily in steel plate without any tin at all.

To bring about maximum conservation of our limited tin supplies in fulfilling the needs for which tin cans must be used, WPB has under way a program of progressive decrease of tin in cans wherever practical.

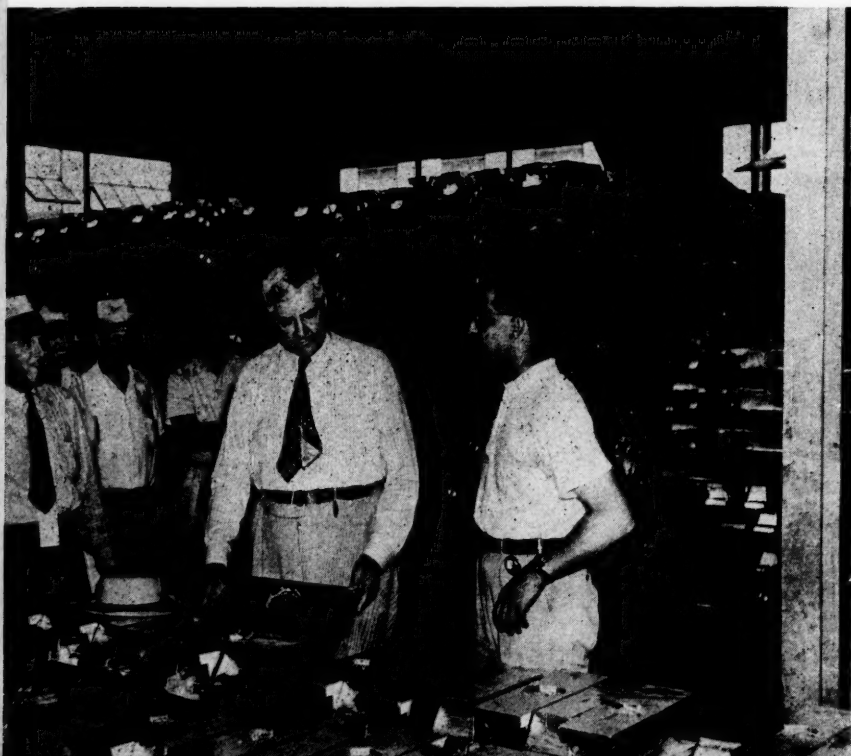
The first step in conservation, already accomplished, is limitation on can use.

The second step in the program is substitution of electrolytic tin plate and bonderized steel ends for cans wherever the nature of the pack permits. This is estimated to save 3,500 tons of tin per year by 1943.

The third step is substitution of electrolytic tin plate bodies and bonderized steel ends wherever practical. This will save an additional 4,300 tons of tin, a total of 7,800 tons per year.

The fourth step is use of electrolytic tin plate and bonderized steel for both bodies and ends wherever possible, for an additional saving of 3,300 tons. The total estimated to be saved by this pro-

(Continued on page 48)



# POST-WAR COMPETITION

By

CLYDE G. CONLEY

*President, American Institute of Steel  
Construction, Inc.*

**A**LL-OUT production for war must draft the brains and organization, as well as the equipment, of the shops fabricating structural steel. Pre-fabrication of structural parts has always speeded the construction of bridges and buildings. That technique has been widely extended to meet the needs of war. But the ability to produce, according to special plan and specification, anything made of iron or steel structural shapes and plates has proved of unique value in the war effort. This genius is available to develop new implements, make real the many new and startling ideas that the intense war effort requires and is constantly inventing.

Many new materials have been developed and substitute methods have been resorted to. These will not quietly withdraw at the end of the war and leave the markets to the older industries which formerly dominated them. It will be a new world into which we will enter once this war is over, and in this new world we will have industrial problems which only industry can solve cooperatively.

December 7, 1941, the United States turned from a defense program to a war program. The construction program for defense was large, and speed was necessary. However, the construction program for war was larger and still greater speed was necessary. In the face of such a national emergency it is essential that we keep fundamental facts in mind and guard against intemperate charges or criticisms that might be condoned in times of peace. Lumber, cement and other competitive materials must be used, as well as steel.

No intelligent person has any reason to criticize any type of construction the Army, the Navy and

other agencies of our Government have been forced to adopt. The structural steel fabricating industry shipped over 2,700,000 tons of fabricated steel in 1941 and erected it in bridges, buildings, factories, and military bases. The record for economy, and the record for speed of erection achieved, is something that should cause our nation to be proud, and we doubt whether any other designs or other methods of erection could have improved upon what was then done. The volume of our shipments this year, 1942, will be but slightly less, and all of it has gone into the war effort.

The Government insists that essential requirements will henceforth command every pound of steel that the mills can produce. But if the volume of construction and the time limit set upon its total completion by the grand board of strategy is to be achieved during the time limit set, it will be necessary not only to make use of every pound of structural steel the industry can again this year produce, but we must use substitute materials where the types of structures can be made best to conform to the uses to which the structures are put, without too greatly increasing the cost.

The same ability to fabricate steel to a plan and a specification is now being applied to a new job—to fabricate steel to a multiple of war uses, to supplement the production line to make "bits and pieces" that our arsenals and our factories may turn out more of everything. That is the job to which this industry is dedicated in the year ahead.

The same ingenuity and engineering skills which have, during the past two or more decades, made possible a steady improvement in the American standard of living, have been applied to the problem

of production for war. Assembly-line technique, or large-scale production, has not been the only factor tending to bring about better and more efficient use of our human and material resources in this emergency. The progress of defense technology and the diffusion of techniques have necessitated a reappraisal of our industrial capacities.

The standardization of design and material specifications and the simplification and improvement of production methods, coupled with close inspection, have encouraged the adoption of many advances in shop practices. Methods relating to improved electric welding have been found possible, its cost reduced to a point where efficiency and speed have offset the economies of riveting.

By using a higher working stress, structures required for but temporary use are made of structural steel, thus providing a fire-safe building quite adequate for the emergency. Improvements in metallurgical processes insure a more uniform steel, a safer and a stronger steel, which can be safely worked up to the higher stresses. Economies are thereby being discovered which should redound to the permanent advantage of the consumers of steel during the years ahead.

Fabricators have been asked to make strange parts, often to a degree of accuracy that many of them had never attempted before. Government specifications demand small tolerances that may seem impossible of achievement. Plants have been forced to face the technical problem of tooling up, training new operators and retraining their old operatives. Government arsenals had, in the past, maintained some skeleton crews that were available to direct training programs in selected areas and some few fabricators had seemingly had the good fortune to have subcontracted a few articles with the arsenals. But the magnitude of war production was not foreseen and new production processes had to be worked out by industry itself.

Shifts in the structure of the economy during this war period will leave their mark. Whether the

*(Continued on page 46)*





[Official U.S. Navy Photo]

Above—Hundreds of men come pouring from this all-welded C-3 ship shown at the outfitting docks as shifts are changed. Below—The U.S.S. Pocomoke, another all-welded C-3 ship now in war service.

ONLY a few months before hell broke loose at Pearl Harbor, the American South African Line issued a travel folder describing three new all-welded liners for its New York to Cape Town run.

Travel folders have a habit of making you see all at once that you've just got to get away for a while. This one was no exception. The color illustrations and copy were enough to make the most confirmed "stay-at-home" rush upstairs and start packing.

Here is a sample: "... the first all-welded passenger-cargo ships in the world, constructed with the utmost regard for comfort and safety, and representing the most advanced study in naval architecture." The unsung author goes on to describe such indispensable little niceties as glass enclosed verandas, staterooms with casement windows, tiled swimming pools—even air conditioning!

## ALL-WELDED SHIPBUILDING

Unfortunately, war has a habit of upsetting the best laid plans, and if these three ultra-modern sea-giants—the S. S. African Comet, African Meteor and African Planet—have as yet made the long, 16½ day run to Cape Town, it is a closely guarded military secret. Immediately after Pearl Harbor, on U. S. Maritime Commission orders, they were repainted dull war gray, renamed we can't tell you what, and assigned to service in our vital ocean supply lines. Their maiden voyages—to "destinations unknown"—were made not with throngs of jubilant tourists, but loaded down past the water line with P-38's and General Grants and probably, for good measure, a thousand or so doughboys on their way "over there."

The main reason the American South African Line's announcement is worthy of notice here is because it marked the coming-of-age of the all-welded ship. The 100% welded job, in turn, represents an advance which, to ship builders and line operators, is almost as important as the Robert Fulton's successful trial run back in the days when clipper ships ruled the seven seas.

Wartime has played havoc with the tourist trade, but it has been a tremendously accelerating force to shipbuilding. In the process, the all-welded ship has attained a prominence that might have required a good many years in less

eventful times. Even before the war, however, welding was clearly destined to become an accepted method of shipbuilding.

The first 100 percent all-welded ship to be launched in this country was a 1500-ton tanker and combination ice-breaker, built in 1935 at the Mobile, Alabama, shipyard of the Ingalls Shipbuilding Corporation. It came about in this way: Another Ingalls division, the Birmingham Tank Company, has successfully built all-welded tanks and oil refinery equipment for many of the major oil companies. It had also constructed similarly-fabricated stand-pipes for numerous towns in the South. These tanks had proved fully satisfactory in every respect, and that suggested to Mr. R. I. Ingalls, the pioneer-minded head of Ingalls' industries, that welding was equally suitable for ship construction.

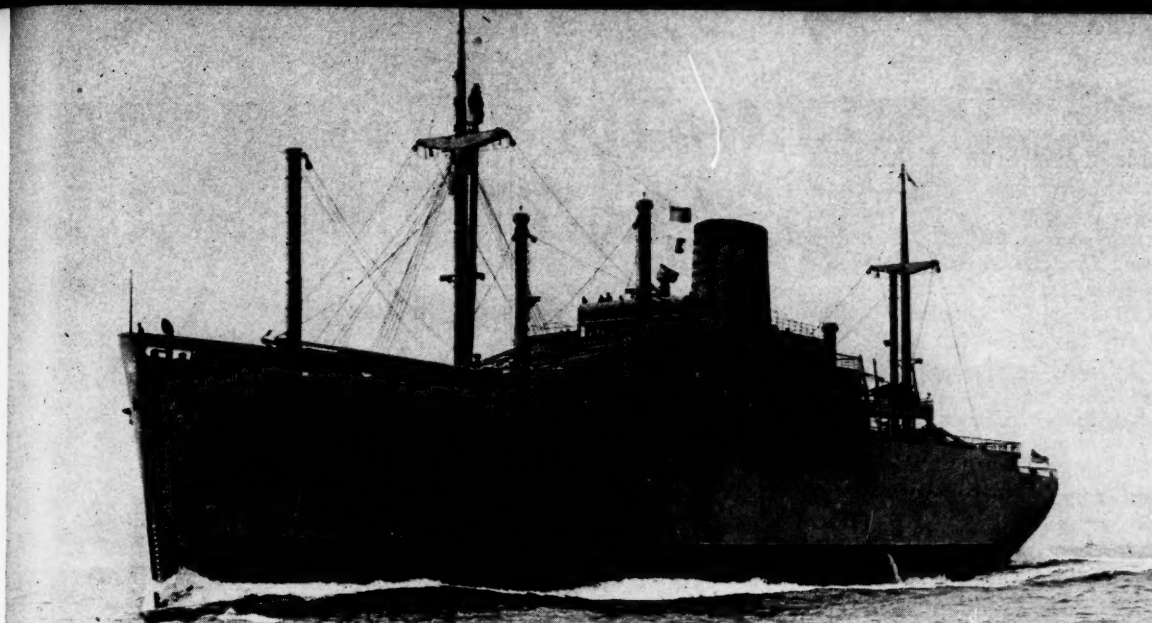
During the years immediately following 1935, while their Tennessee River shipyard, at Decatur, Alabama, was turning out several hundred river craft and other comparatively small boats, Mr. Ingalls and his son Robert Ingalls, Jr., dreamed of building ocean-going vessels which, like these smaller ships, would be constructed without the use of a single rivet. In 1938, the newly-formed U. S. Maritime Commission gave them their chance.

A shipyard site was selected at Mobile, but this soon gave way to

[Official U.S. Navy Photo]







*A sister ship of the African Planet serving the United Nations overseas. Gun turrets were added after this photo was taken.*

the better situated mouth of the Singing River at Pascagoula, Mississippi. Experienced personnel were brought in and in a short time, America's first shipyard for building 100 percent welded ships was operating full blast.

Ships of the class of the African Comet, Planet and Meteor are known to maritime circles as the C-3P type. The C-3 class may be a cargo ship, or passenger-cargo vessel. The designation does not indicate either welded or riveted construction, but is primarily one of size and certain basic specifications. According to U. S. Maritime Commission literature, it is a ship of approximately 18,000 tons displacement, having an overall length of 492 feet and a beam of 69 feet, 6 inches.

This C-3 type of ship—the only type on which Ingalls' Pascagoula shipyard is currently engaged—is not to be confused with the widely publicized Liberty ships. The latter, known to the Maritime Commission as the EC-2 class, is completely different and simplified in all major respects. It was designed shortly after America's entrance into the war only as a "mass-production emergency cargo vessel for war service." As such, it can be built in a fraction of the time required for a C-3. Its simplified steam engines, cargo gear and other basic parts are of the simplest standardized types—the kinds that can be most readily built and installed.

Compared with the C-3's horse-

power, the Liberty ship is many knots slower in speed.

In a war that will be won or lost by the extent of our ability to produce quickly the ships to get supplies and men to widely scattered battle fronts, the Liberty, or EC-2, is serving a valuable purpose. But to the experienced maritime man, whether builder, line operator or ship-captain, it is hardly the kind of ship to cause excitement or praise in any other times than these.

Perhaps the most striking distinction between the C-3 and the Liberty ship is one of cost. The cost of an average C-3 passenger-cargo vessel is upwards of \$7,000,000, while Libertys were designed to cost approximately \$1,800,000. To draw a parallel, it is the difference between the powerful, precision-built motor car and the mass-produced variety made to sell for a few hundred dollars.

The Maritime Commission puts great stock in the Liberty ship for the job immediately ahead. But for the long run, their chips are on the C-3 as the type of vessel that will put America's merchant marine out in front in the coming scramble for international shipping after the war.

Mr. R. I. Ingalls and his associates concur heartily in this be-

lief, but they go a step further and insist that the best C-3 is the all-welded one. Already, it is claimed there is a good deal of evidence to indicate that this is so.

Welded vessels, compared with the riveted type, are lighter up to 13 percent, size for size. This is because the half-million and more rivets in the average ship, plus the added weight of overlapping plates, account for a sizable proportion of a ship's entire weight.

Less ship weight means more cargo carrying capacity. It also means more knots for the horsepower, although another factor in this is that the glass-smooth hull of the welded vessel offers a minimum of resistance as it pushes through the water.

People used to ask if welded ships were as strong as riveted, but engineers, steelmen and shipbuilders are apt to look at you a little pityingly if you ask that question now. The fact is, of course, that a weld is the most perfect method known for joining two pieces of steel—stronger, in fact, than the parent steel itself!

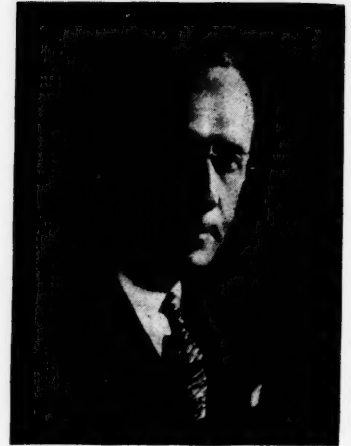
It's a good bet that after this war, you will travel and ship in American vessels—all-welded ones. It's another good bet that the Ingalls Shipbuilding Corporation, which pioneered them through its Decatur and Pascagoula shipyards, will be among the country's leading designers and producers, supplying a valuable post-war market for southern steel and labor.

# RAILROADS CARRY-ON

*Equipment is their real problem*

By

SAMUEL O. DUNN



Samuel O. Dunn

**A**FTER the United States had been involved in the first World War nine months, government operation was adopted on January 1, 1918, upon the ground that the railways were "breaking down." After nineteen months of preparation for the present war and after we have participated in it ten months, it has become a momentous question whether our government itself is going ignorantly or intentionally to *break down* our railways. The government has been constantly warned for more than a year, and is still being warned, that continuance of the War Production Board's policy of unduly restricting the building of new locomotives and cars, and of unduly restricting the provision of materials for maintenance and repair of all facilities, will break the railways down; but there is as yet no evidence that these warnings are being heeded.

Unprecedented and amazing increases of efficiency in the use of equipment, tracks and terminals have been achieved within the last two years; but in spite of them the need for more equipment and materials rapidly is becoming positively desperate. At the meeting of the National Association of Shippers' Boards in Chicago on October 16, President John J. Pelley of the Association of American Railroads declared, "There is no margin left in the reserves represented by unservicable and surplus equipment," and stated the railroads have asked government authority for acquiring 900 new loco-

motives, 80,000 new freight cars, 2,100,000 tons of new rail and proportionate amounts of maintenance materials before October 1, 1943. Director of Defense Transportation Joseph B. Eastman at the same meeting said, "When it comes to taking in slack, the shippers and railroads have done so well that we are pretty close to the end of the rope, and there is clear and definite need for more new locomotives and new freight cars." These are explicit warnings from the two most authoritative official railroad and government sources.

Let us measure the requests now made by the railways by new equipment *actually acquired* in earlier periods.

In 1918 the railways were under government operation. Freight traffic was 12 percent larger and passenger traffic 23 percent larger than in 1916. In the preceding decade they had acquired averages of 2,600 new locomotives, 106,000 freight cars, and 2,400 passenger-train cars annually. And yet in 1918 the *government itself* acquired for them 3,500 locomotives, 67,000 freight cars and 1,500 passenger-train cars.

In 1929 the railways were under private operation. Their two years' increase in freight traffic over 1927 was 4½ percent; and there was a decline of 8 percent in their passenger traffic. In the preceding decade they had acquired averages of almost 1,500 locomotives, 86,000 freight cars and 1,500 passenger-train cars annually. But in 1929

they acquired 926 locomotives, 82,240 freight cars and 1,250 passenger-train cars.

The railways have been under private operation, but subject to government control of materials, during the last two years. Their two years' increase in freight traffic in July, 1942—the latest month for which complete statistics are available—over July, 1940, was 83 percent and in passenger traffic 112 percent. In the decade ending with 1941 they acquired averages of only 321 locomotives, 26,302 freight cars and 222 passenger-train cars annually. And yet in the first nine months of 1942 the government allowed them to acquire only 575 new locomotives, 56,081 new freight cars and virtually no new passenger cars.

To summarize: Their freight traffic has increased relatively *seven* times as much within the last two years, their passenger traffic *five* times as much, as in the two years ending with 1918. Their freight traffic has increased relatively *twenty* times as much within the last two years as in the two years ending with 1929, and their passenger traffic—instead of declining as then—has more than doubled. They acquired — principally because of depression conditions—in the decade ending with 1941 only one-eighth as many locomotives, only one-fourth as many freight cars and only one-tenth as many passenger cars as in the decade ending with 1917—also, less than one-fourth as many locomotives, less than one-third as many

freight cars and less than one-sixth as many passenger cars as in the decade ending with 1928. And yet the government allowed them to acquire in the first three-fourths of this year less than *one-sixth* as many locomotives, and fewer freight cars, as it acquired for them itself in 1918; and only two-thirds as many locomotives and freight cars as they acquired in 1929—and virtually no passenger cars at all.

In view of this actual experience, the request of the railways for 900 locomotives, 80,000 freight cars and no passenger cars is very modest, indeed. In fact, much too modest when accompanied, as it is, by estimates that freight traffic will increase 10 to 15 percent in 1943, and passenger traffic a great deal more. Calculations of the Bureau of Railway Economics, based upon prospective traffic and further possible increases in operating efficiency, and backed up by the highest railroad and government authorities, indicate an apparent need in 1943 for at least 1,000 new locomotives and more than 100,000 new freight cars. And yet credible reports from Washington indicate that the War Production Board intends not to allocate even anywhere near as much materials for equipment building and maintenance as the Association of American Railroads has asked for.

The railways' receipts of materials (exclusive of new equipment) in the first seven months of 1942 amounted to \$510,000,000, and were 15 percent larger than in the same part of 1941 and 47 percent larger than in 1940. But they received 18 percent less rail, the most important component of tracks and terminals, than in either 1941 or 1940. And although traffic has continued sharply upward, they have been faced since last March with a steady decline in the amount of materials and supplies delivered to them, and are now reporting declines in their aggregate inventory of stocks on hand. They received 10 percent less maintenance and repair materials in July than in June, and the July figures reflected the fourth consecutive month's decline in materials received. Deliveries to them in July, moreover, were 13 percent less than in July,

1941, the first instance when deliveries fell below deliveries in the corresponding month of last year. Materials and supplies (excluding fuel and new equipment) received during July, totaling \$63,701,000, were 9 percent less than in June; 13 percent less than in May; 16 percent less than in April; and 22 percent, or \$5,808,000, less than in March.

Nor is this the worst of the situation. The railways, in the ordinary course of business, use up the supplies they have in their storehouses, and draw upon manufac-

*Because of the important part the railroads are being called upon to do and the tremendous burden which rests upon them, it is essential that their equipment be adequate and adequately maintained.*

*In the accompanying article "Railroads Carry On," which was specially prepared for the MANUFACTURERS RECORD, Samuel O. Dunn, well-known editor of the authoritative magazine Railway Age, ably analyzes the present situation in comparison with earlier years. In so doing, Mr. Dunn brings to bear upon the subject a background of nearly forty years intimate association with the railroads as an editorial writer. We strongly recommend this article as both interesting and informative.—*

*Editor.*

turers for replacements. And they are getting into increasingly serious danger of running short, not only because (1) the government is not letting them get enough equipment and materials, but also (2) because the government is not letting their suppliers get enough materials.

The total materials available for railway use at any given time obviously include both the stocks that the railways have and the stocks that the manufacturers have. And in a recent article in the Railway Age a railway supply manufacturer strongly emphasized that manufacturers are en-

countering such insuperable difficulties in getting materials that their stocks are declining worse than those of the railways. "The reason they (the railroad officers) fail to see that reserves have been depleted," he said, "is because the greater part of that depletion has taken place in resources which most railroad men never see with their own eyes \* \* \*. A real danger is at their very door, and they should do something about it. Once bad-order cars begin to pile up at the thousands of repair points where only a couple of car-maintenance men are stationed \* \* \* there will be more work ahead of them than these scattered men can perform in time to stave off serious congestion."

The increase in freight service rendered by the railways in July, 1942, as compared with July, 1939, just before the war in Europe began was: Per mile of line, 111 percent; per locomotive, 120 percent; per freight car, 94 percent. The increase over July, 1918, under government operation, was: Per mile of line, 59 percent; per locomotive, 125 percent; per freight car, 94 percent. Because comparatively so little equipment has been acquired during the last decade, the average age of locomotives and cars during the present war period is much greater than it was during the last war period; and this—together with the much greater service being rendered—more imperatively requires materials for maintenance and repairs.

As the manufacturer-author of the article mentioned said, "It is our nation's vital system of supply which is at stake \* \* \*. Will the railroad industry?"—he might better have addressed this question to the public and War Production Board—"be content to wait until a breakdown occurs, and then see the Federal Administration \* \* \* apply directives which cannot then avoid great injury to the war effort? \* \* \* The demagogues will have another specious talking point for government ownership, and the fight for private operation may have been lost by default."

Does the nation want its war and civilian traffic handled? Only the War Production Board, with its control of materials, can now decide whether it will be handled.



# CAMOUFLAGING

## INDUSTRIAL PLANTS

By  
FRANK G. BEURY

**I**T is believed that the continental United States will be more subject to precision long-range bombing than to dive bombing or mass blitzkrieg tactics. Therefore, it is against this method of attack that present industrial camouflage is primarily designed. In such long-range bombing, the target must be sighted from a distance of six miles, and the bombs must be dropped while the plane is still two and a half miles from the objective. Consequently the adjustment and readjustment of the bomb sight must take place in a space of sixty seconds at the most, while the average time is between thirty and forty-five seconds. This sighting is necessarily done at an angle of from fifteen to fifty degrees and at an altitude of from ten to thirty-five thousand feet, depending on the effectiveness of the anti-aircraft fire and the defending fighter planes. Thus the needs for camouflaging are rendered quite different from those of the last war.

According to the Camouflage Section of The Engineer Board at Fort Belvoir, the primary object of protection against this sort of bombing is dispersement of the target, scattering a plant throughout as many small and separated buildings as possible. This, of course, is difficult in the cases of many plants already constructed, but is being kept in mind for all new plants. Whenever dispersement is impossible, the next best step is disruptive painting, the method by which large shadows are broken up and made to appear a natural part of the surroundings.

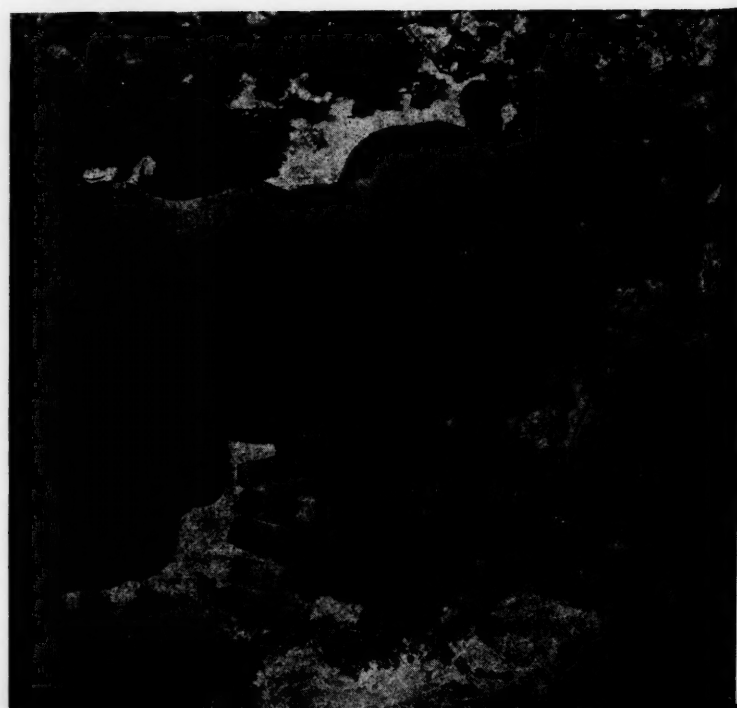
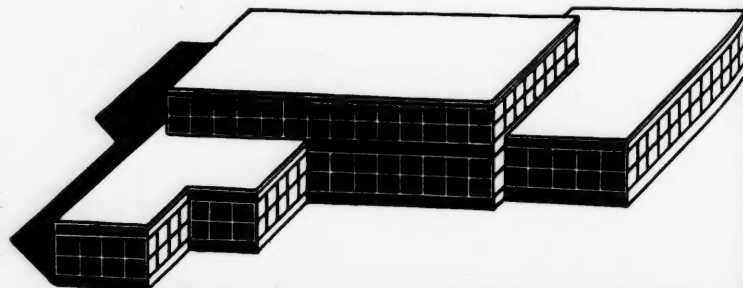
One of the most effective, yet simple means of camouflage is the extensive use of trees. Whenever possible, the manufacturer should plant heavily in the area surrounding his establishment, and in cases of new construction, he should always leave room for such

protective planting. When this concealment is impossible, it has been found quite effective to build a dummy plant at some distance from the objective. It can readily be seen how such a ruse might confuse a bombardier travelling anywhere from two to four hundred miles an hour at an altitude of twenty-five thousand feet and having less than sixty seconds in which to do all his figuring.

The greatest aid to enemy bombers in spotting targets is the fact that man-made construction

will have geometric outlines, which stand out sharply from the irregularities of a natural landscape. All the roof and wall painting in the world will not conceal a building whose sharp rectangular shadow is unaltered. This phase of camouflaging is dealt with by the disruptive painting mentioned above.

Other characteristics which have to be taken into account are the large bulk of buildings, their surface textures, which are readily discernable from the air, and their colors. The latter is perhaps the least important, as small differences in color are not obvious to observers at high altitudes. However, the difference between





A demonstration of modern methods of camouflaging industrial plants may be seen from the progressive pictures of this model shown on the opposite page and at right. Paint alone would not be sufficient to hide such a building as that shown in the first picture because from each side there are sharp contrasts and marked shadows. In the second picture a curved roof and trees have been applied but due to the absence of texture there is a considerable difference in tone between the flat roof and the ground. In the third and fourth pictures (at right), the roof is planted with grass or has an artificial texture of wood-shavings, etc., and shrubs are added to give a better confusion of shadows. Cars, not parked under trees, still expose the target. (Photos by courtesy from Industrial Camouflage Manual, Reinhold Publishing Company, New York, 1942).

painted and natural foliage will be discovered by infrared photography, which shows painted leaves as black and natural leaves as white, because of the chlorophyll.

Much bombing is facilitated by landmarks close to the target. Prominent landmarks as far as ten miles from the target may be of assistance in locating an objective, while often a completely invisible building can be hit by sighting with reference to one or more non-military, uncamouflaged buildings within a mile or so. Not only does this often necessitate the concealment of such apparently innocuous objects as reservoirs, stadia, and monumental buildings, but it renders rural locations for new plants highly desirable. Aside from the ways in which rural plants lend themselves more readily to concealment, the damage from poorly aimed bombs is negligible in the open country.

There are three stages of camouflaging in the present war. The first is known as "toning down," and is accomplished principally by means of paint. In toning down, very little actual concealment is brought about, but often it will render the bombardier's already difficult problem somewhat more confusing, and therefore will have been worth the effort.

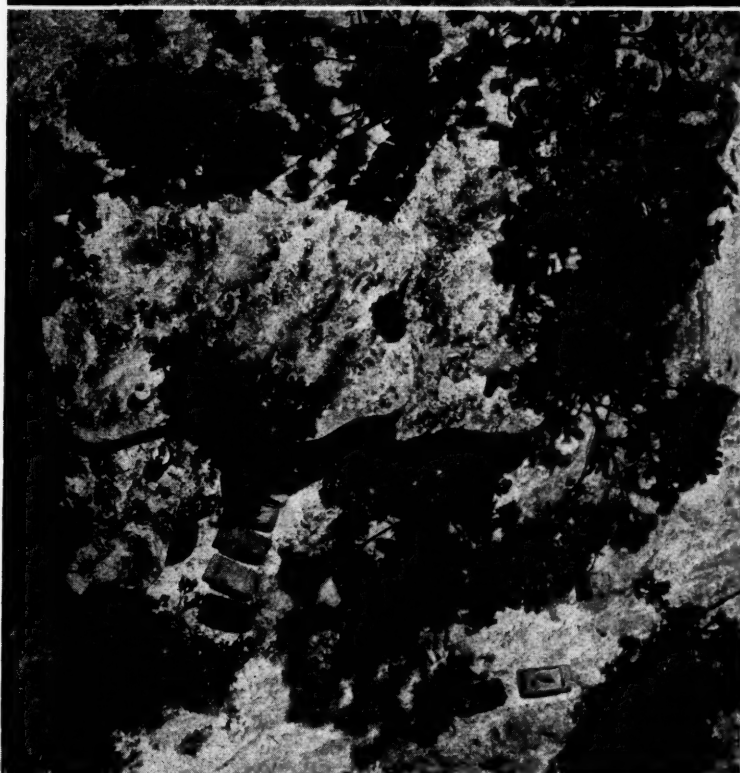
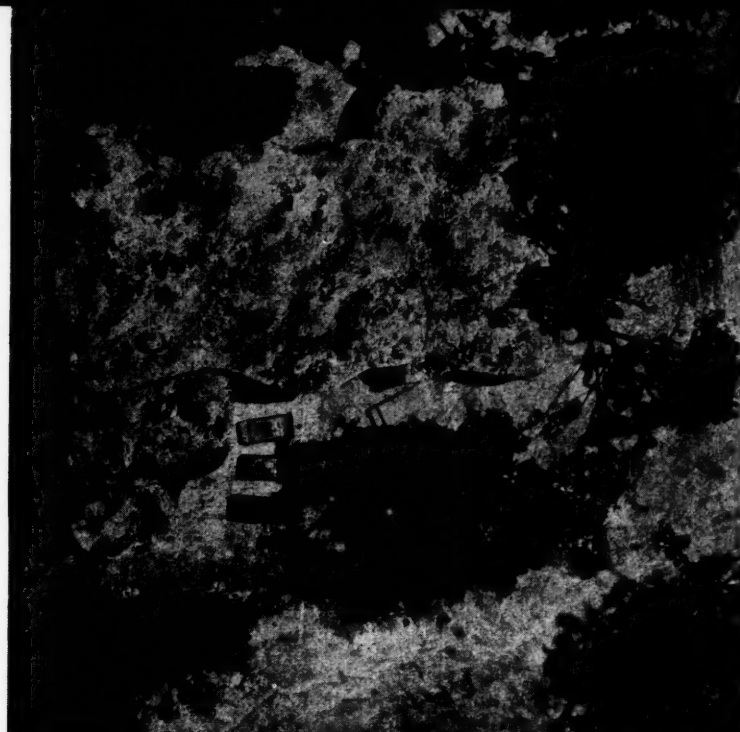
The next step comprises the average job of camouflaging. False forms and shadows may be introduced, thus doing away with the tell-tale geometric outlines. This generally involves simple construction, using such readily available materials as salvaged lumber,

chicken wire, and inexpensive textiles. These can be formed, for example, into natural-looking screens to cover the vast parking lots around plants which would be a dead give-away if left uncamouflaged. Tree planting figures importantly in such work, as does the texturing of flat surfaces to reduce the amount of light reflected.

Total camouflage, an expensive

and tedious process which is used only when the target is of extreme importance to the war effort, entails a variety of complex constructions. False roofs, real or artificial trees on roofs, dummy plants, and, in some cases, the placing of installations underground are all a part of the all-out scheme.

(Continued on page 48)



# NORTH CAROLINA'S BOOMING MICA INDUSTRY

By

BILL SHARPE

N. C. Dept. of Conservation  
and Development

**ALTHOUGH** more than 300 mines are in operation, North Carolina's booming mica industry will probably not meet the quota of 3,000,000 pounds of punch and sheet for 1942, set by WPB before banning private imports, in October. With prices up 80 to 200 per cent over figures of 18 months ago, and with Uncle Sam staking private diggers with compressors, drills, pumps, and hoists at 2 per cent (of value of equipment) per month, many "shirt-tail" diggings have expanded into sizeable mining ventures in recent weeks.

One of more than 300 minerals occurring in quantity in North Carolina, mica from the Carolina

mountains has made up 61 per cent of domestic production for the last forty years—10 to 20 per cent of United States requirements. State Geologist J. L. Stuckey and representatives of the U. S. Geological Survey agree that twice the annual production of recent years is fairly easily available, but they are not sure that the 1940 production of a million pounds of sheet and punch will be trebled by the 1942 output.

But, trebled or merely doubled, mica miners in the mountains between the Blue Ridge and Great Smoky ranges are making more money than they ever made before, and the Government (through

**Quota goal of  
3,000,000 pounds  
set by W.P.B.  
for 1942 may  
not be reached**

Colonial Mica Company and other agencies) is doing very well by the industry.

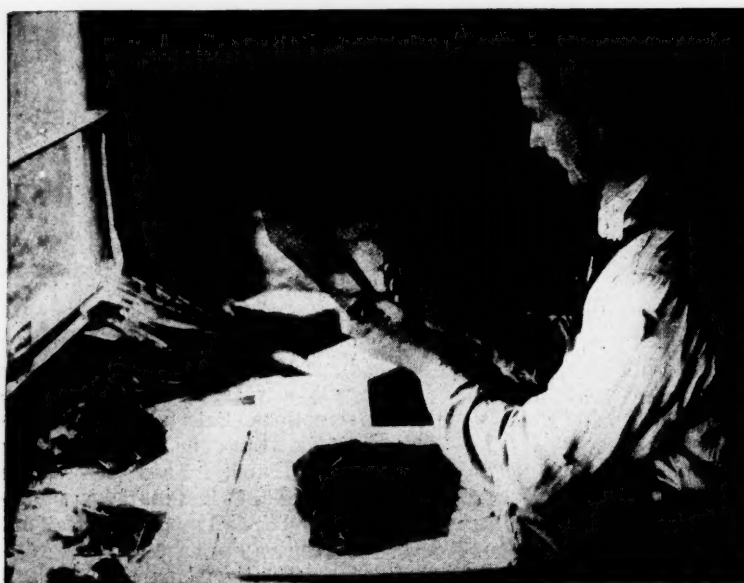
Colonial was organized in June 1942 as a non-profit subsidiary of Metal Reserve Corporation, a Federal agency, for the purpose of exploiting mines abandoned after reaching the water line (because individual mine-owners—many of whom have done spare-time digging in their back-yards—did not have capital to risk in equipment) and to stimulate the mine-mouth market. A score of Colonial buyers and graders work out of Asheville, where the Federal warehouse is handling large quantities of sheet and punch and scrap.

In September 1941 a special priorities office was set up in Raleigh (Department of Conservation and Development) to provide quick assistance to miners needing supplies.

This office has aided in reopening or expansion of scores of private mines, according to Director Sam Silver.

Of the two commercially valuable varieties of mica—muscovite and phlogopite—muscovite occurs more frequently in the continental United States. Phlogopite is found in commercial quantities in the nearby Canadian provinces of Ontario and Quebec. North Carolina mica is muscovite, and deposits in the western mountains

*A mica peeler holding two sheets of rum mica. The value increases with the size of the sheet which may be cut from single pieces. Sheets as big as this now sell for \$16 a pound or more for the nation's military machines need all they can get.*



of the state are sufficient to supply a large per cent of the nation's mica requirements, geologists estimate.

United States is the largest consumer of mica (for precision equipment in radio, in airplane ignition systems, in electrical transformers and generators) but normally produces less than half of its total requirements—less than 5 per cent of its requirements of some special kinds.

Chief sources of imports have been India and Madagascar, with Brazil supplying increasing quantities in recent years. With all these sources banned for the private importer and seriously curtailed for all users, value of North Carolina's products has sufficiently increased to practically quadruple the price in less than two years.

Muscovite from the Carolina mines is now bringing up to \$16 a pound, f.o.b. Asheville, and other shipping points. This is of course for the best grade, in largest sheets, ranging up to 8 x 10. Price of smallest size sheets (1½ x 2 inches) ranges around \$2.40 a pound. Punch mica (smaller than 2 inches square) is selling at 30c a pound. Scrap, which necessarily constitutes a very large percentage of total production, has not risen spectacularly.

Scrap has found increasingly wide use in manufacture of roll roofing, wall paper, and in the rubber industry. Ground mica has also been used in paints to increase durability and protective quality. The strategic mineral is also used for "isinglass" windows in stoves and lanterns, but not as much as formerly.

Scrap mica is an important by-product of feldspar mining, in which North Carolina is also a leading state. Some sheet and punch is also produced as a by-product of feldspar mines.

Center of the muscovite industry in North Carolina is the hamlet of Spruce Pine, in the northwestern corner of the state. Surface portions of several pegmatite bodies were mined in the region by American Indians before the coming of white man, but modern mining began in 1868. The demand was principally for sheet mica for stove windows, until near the turn

*Mica production in North Carolina usually has been on a primitive scale, with farmers and small operators working deposits enough to take out the "cream" and then abandoning the mine. Now pumps, drills, compressors and other equipment is being leased by the government to miners to extend operations and increase output. Right top—at the end of a horizontal shaft the vein has dropped suddenly and workings have proceeded 80 feet downward. Center—a typical mica mill. Bottom—bringing feldspar, the most common by-product, out of a mica mine.*

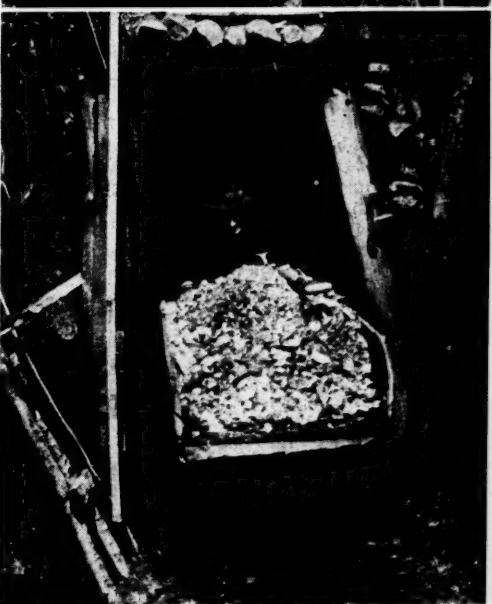
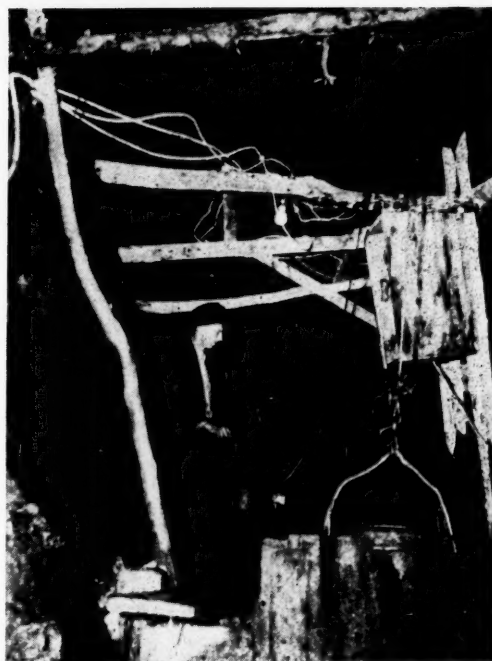
of the century, when America's expanding industries found many new uses for the mineral. Till today, most of the mines are small, employing fewer than half a dozen men; and few have stopes or shafts more than 500 feet in length.

Many of the North Carolina Muscovite mines have been idle since World War I, or operated only at long intervals in the last quarter-century. Nearly all such have been reopened in recent weeks.

As to amounts of muscovite still resting in the Appalachians of North Carolina, geologists are reluctant to make any sort of estimate. The erratic distribution of the mineral makes it impossible to judge the economic possibilities of any single working face or outcrop, they say. It is possible to sample qualitatively, but not quantitatively.

Quality in mica for electrical use is measured by the power factor—the loss of electrical energy in films of sheet mica used as the dielectric in condensers. Bureau of Standards tests showed samples from 71 of 109 mines in the Spruce Pine district to have a power factor not exceeding .04 per cent, the maximum power factor for mica in transmitter condensers. Power factor of some North Carolina product is comparable to that of India ruby mica, considered best obtainable by radio and aviation manufacturers.

Producers of mica in the United States sold \$674,087 worth in 1935; \$908,384 worth was imported. Estimates of the value of the 1942 domestic production are not made by Colonial, but will run high with North Carolina scheduled to furnish about 65%. Other producing states are New Hampshire, Georgia, Virginia, South Dakota, Colorado, Texas.





# SOUTH'S CONSTRUCTION CONTRACTS EXCEED 3½ BILLION IN TEN MONTHS

**THE** total for construction contracts let so far this year below the Mason and Dixon line amounted to \$3,513,046,000, after adding the \$199,566,000 aggregate for the month of October. An all-time record, the ten-month figure embraces the largest public building and industrial construction program in Southern history. The total is \$1,865,917,000 for the former; \$997,720,000 for the latter.

In addition, public engineering work totaled \$392,147,000 and road and bridge contracts \$147,104,000, while private building, beset by stringent wartime restrictions since April, contributed \$110,158,000, or a little more than three per cent of the total of all awards.

Southern construction at this time is practically a billion dollars ahead of the total for the similar period of last year. The public building program is more than 100 per cent over the activity of the first ten months of 1941. Industrial construction for the current year has lagged about ten per cent, compared with the same months of last year.

October construction levels are down. The total for the month was \$199,566,000. Government policy was reflected in the decline. President Roosevelt's disclosure toward the end of October that quantity production was being supplanted by quality output was mirrored in the reduction of industrial construction from \$52,620,000 in September to \$8,645,000 in October.

Government financed building also dropped. The \$144,843,000 total for October was thirty-two per cent below the figure for the preceding month. Disagreement among Government officials as to the ultimate size of the armed forces and an announced downward revision of previously stated numbers was reflected in October's construction preparations.

October's decline was seen in some circles as an indication of the probable trend of the immediate future in construction. The War Production Board early in the month predicted a drop of one-third for building and engineering construction, exclusive of shipbuilding, during 1943. Some drop may be expected in view of the peak reached in 1942.

## Construction Future Seen

"At the present rate," said a prepared statement, "such war construction alone will reach a total of more than eleven

By

S. A. LAUVER

News Editor

billion dollars by the end of 1942, topping the previously all-time record for all types of construction established in 1927 with a figure slightly less than eleven billion dollars."

Southern construction history, according to statistics tabulated from reports received by the *Manufacturers Record*, does not show 1927 as a record year. The construction total for awards in 1927 in that sixteen-state area were not only lower than its two predecessors but less than the totals of succeeding years except dur-

*Southern construction during the first ten months of 1942 has exceeded the levels for all twelve-month periods in the past. The total now stands over three and one half billion dollars. This figure is practically a billion dollars ahead of the total for comparable ten months of last year. The aggregate for awards during October was \$199,566,000, a drastic decline from the \$313,458,000 for the preceding month, when a downward trend of four months standing was temporarily halted. The chart at the right shows the month to month variations of Southern construction during the last five years.*

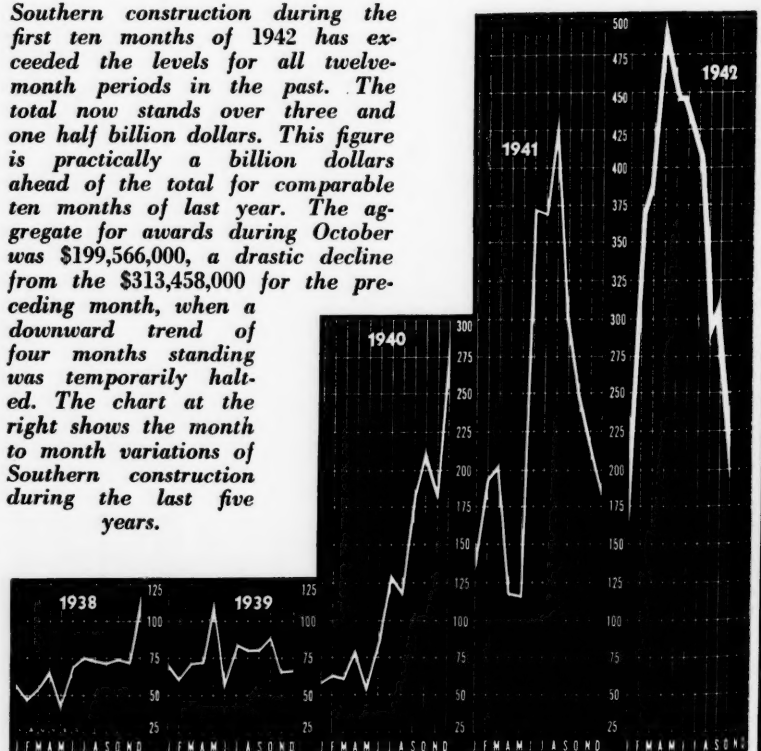
ing years when the depression was at its worst.

From 1936 on, the trend in Southern construction activity has been generally upward. This was definitely true in 1940, when the total passed the billion dollar mark for the first time. During 1941 the value of Southern awards almost reached three billion dollars.

The current ten-month figure of \$3,513,046,000 surpasses any of these previous annual records with two months yet to go. Judging from the War Production Board's figures, the South which covers about one-third of the country's area is receiving a full share of the construction incident to the present global conflict.

## Long Range Prediction

A longer range indication of construction to come was made during October by the Federal Works Agency. Brig. Gen. Philip B. Fleming, head of that Federal



MANUFACTURERS RECORD FOR



## South's Construction by States

	October, 1942		Contracts Awarded First Ten Months 1942	Contracts Awarded First Ten Months 1941
	Contracts Awarded	Contracts to be Awarded		
Alabama	\$15,497,000	\$10,736,000	\$152,243,000	\$244,587,000
Arkansas	2,933,000	2,943,000	92,257,000	144,686,000
Dist. of Col.	1,806,000	3,938,000	63,408,000	49,310,000
Florida	23,997,000	14,372,000	270,234,000	113,745,000
Georgia	6,839,000	23,722,000	174,222,000	156,176,000
Kentucky	740,000	890,000	103,754,000	123,382,000
Louisiana	6,438,000	7,138,000	215,705,000	192,080,000
Maryland	37,997,000	4,806,000	205,548,000	174,419,000
Mississippi	8,782,000	8,802,000	179,060,000	73,330,000
Missouri	13,095,000	10,602,000	180,551,000	98,821,000
N. Carolina	6,388,000	14,508,000	168,331,000	99,766,000
Oklahoma	15,065,000	2,730,000	177,176,000	141,213,000
S. Carolina	2,711,000	9,112,000	89,321,000	61,339,000
Tennessee	9,018,000	1,925,000	272,014,000	166,402,000
Texas	40,108,000	45,303,000	887,532,000	450,898,000
Virginia	6,934,000	17,636,000	244,282,000	142,878,000
W. Virginia	1,218,000	1,366,000	37,208,000	81,608,000
<b>TOTAL</b>	<b>\$199,566,000</b>	<b>\$182,589,000</b>	<b>\$3,513,046,000</b>	<b>\$2,514,638,000</b>

## Industrial

(Including Private Utilities)

	October, 1942		Contracts Awarded First Ten Months 1942	Contracts Awarded First Ten Months 1941
	Contracts Awarded	Contracts to be Awarded		
Alabama	\$1,090,000	\$5,100,000	\$22,149,000	\$11,110,000
Arkansas	.....	35,000	1,531,000	1,531,000
Dist. of Col.	.....	10,000	12,889,000	12,889,000
Florida	960,000	.....	32,677,000	32,677,000
Georgia	375,000	.....	42,735,000	42,735,000
Kentucky	20,000	15,000	95,017,000	95,017,000
Louisiana	705,000	537,000	44,518,000	44,518,000
Maryland	1,474,000	130,000	41,213,000	41,213,000
Mississippi	360,000	100,000	105,913,000	105,913,000
Missouri	320,000	360,000	10,222,000	10,222,000
N. Carolina	225,000	100,000	31,423,000	31,423,000
Oklahoma	420,000	350,000	4,411,000	4,411,000
S. Carolina	250,000	.....	97,814,000	97,814,000
Tennessee	685,000	60,000	421,853,000	421,853,000
Texas	1,695,000	3,795,000	7,313,000	7,313,000
Virginia	74,000	10,000	14,932,000	14,932,000
W. Virginia	.....	25,000	.....	.....
<b>TOTAL</b>	<b>\$8,645,000</b>	<b>\$10,787,000</b>	<b>\$997,720,000</b>	<b>\$997,720,000</b>

## Private Building

(Assembly, Commercial, Residential, Office)

	October, 1942		Contracts Awarded First Ten Months 1942	Contracts Awarded First Ten Months 1941
	Contracts Awarded	Contracts to be Awarded		
Alabama	\$60,000	\$100,000	\$1,144,000	\$1,144,000
Arkansas	.....	.....	1,872,000	1,872,000
Dist. of Col.	310,000	40,000	7,695,000	7,695,000
Florida	200,000	.....	5,214,000	5,214,000
Georgia	.....	15,000	6,133,000	6,133,000
Kentucky	.....	.....	70,000	70,000
Louisiana	225,000	40,000	3,284,000	3,284,000
Maryland	547,000	75,000	23,103,000	23,103,000
Mississippi	65,000	.....	1,906,000	1,906,000
Missouri	85,000	10,000	4,325,000	4,325,000
N. Carolina	28,000	.....	2,278,000	2,278,000
Oklahoma	35,000	.....	2,590,000	2,590,000
S. Carolina	.....	30,000	4,769,000	4,769,000
Tennessee	115,000	60,000	1,959,000	1,959,000
Texas	325,000	57,000	22,746,000	22,746,000
Virginia	227,000	.....	20,830,000	20,830,000
W. Virginia	25,000	50,000	270,000	270,000
<b>TOTAL</b>	<b>\$2,277,000</b>	<b>\$477,000</b>	<b>\$110,158,000</b>	<b>\$110,158,000</b>

## Roads, Streets, Bridges

	October, 1942		Contracts Awarded First Ten Months 1942	Contracts Awarded First Ten Months 1941
	Contracts Awarded	Contracts to be Awarded		
Alabama	\$955,000	\$200,000	\$9,796,000	\$9,796,000
Arkansas	165,000	250,000	1,066,000	1,066,000
Dist. of Col.	491,000	80,000	9,081,000	9,081,000
Florida	1,420,000	400,000	12,490,000	12,490,000
Georgia	1,477,000	750,000	12,625,000	12,625,000
Kentucky	250,000	500,000	4,966,000	4,966,000
Louisiana	1,134,000	425,000	5,515,000	5,515,000
Maryland	630,000	250,000	17,028,000	17,028,000
Mississippi	623,000	60,000	3,817,000	3,817,000
Missouri	728,000	222,000	5,405,000	5,405,000
N. Carolina	189,000	550,000	5,168,000	5,168,000
Oklahoma	550,000	1,585,000	4,146,000	4,146,000
S. Carolina	.....	.....	7,193,000	7,193,000
Tennessee	.....	450,000	1,480,000	1,480,000
Texas	3,554,000	9,351,000	23,316,000	23,316,000
Virginia	1,171,000	8,168,000	17,640,000	17,640,000
W. Virginia	943,000	.....	6,339,000	6,339,000
<b>TOTAL</b>	<b>\$14,280,000</b>	<b>\$23,241,000</b>	<b>\$147,104,000</b>	<b>\$147,104,000</b>

## South's Construction by Types

	October, 1942		Contracts Awarded First Ten Months 1942	Contracts Awarded First Ten Months 1941
	Contracts Awarded	Contracts to be Awarded		
<b>PRIVATE BUILDING</b>				
Assembly (Churches, Theatres, Auditoriums, Fraternal) .....	\$285,000	\$130,000	\$4,354,000	\$16,820,000
Commercial (Stores, Restaurants, Filling Stations, Garages) .....	85,000	.....	4,714,000	24,794,000
Residential (Apartments, Hotels, Dwellings) .....	1,907,000	347,000	99,972,600	86,071,000
Office .....	.....	.....	1,118,000	12,213,000
<b>INDUSTRIAL</b> .....	<b>\$2,277,000</b>	<b>\$477,000</b>	<b>\$110,158,000</b>	<b>\$139,898,000</b>
<b>PUBLIC BUILDING</b>				
City, County, State, Federal .....	\$131,546,000	\$85,355,000	\$1,631,193,000	\$757,040,000
Housing .....	11,856,000	19,769,000	203,116,000	136,365,000
Schools .....	1,441,000	1,121,000	31,608,000	32,307,000
<b>ENGINEERING</b>				
Dams, Drainage, Earthwork, Airports .....	\$17,508,000	\$32,320,000	\$310,126,000	\$112,480,000
Federal, County, Municipal Electric .....	3,915,000	310,000	17,912,000	57,513,000
Sewers and Waterworks .....	8,098,000	9,209,000	64,109,000	20,841,000
<b>ROADS, STREETS AND BRIDGES</b> .....	<b>\$29,521,000</b>	<b>\$41,839,000</b>	<b>\$392,147,000</b>	<b>\$190,934,000</b>
<b>TOTAL</b> .....	<b>\$199,566,000</b>	<b>\$182,589,000</b>	<b>\$3,513,046,000</b>	<b>\$2,514,638,000</b>

unit, delved into the future and said he belonged to the school of thought which saw a period of uncertainty following the war. "We will be extremely unwise if we fail to make some plans for it now," he added.

Advocating the preparation of plans for the future, he outlined an after-the-war program and proposed passage of legislation which would:

Authorize the administrator of the Federal Works Agency to make loans or grants, or both, to States and their public bodies, to aid the preparation of public works programs.

Authorize the Federal Works Administrator to purchase or acquire by the power of eminent domain, any land necessary to accomplish the purpose of a particular project.

Authorize the Reconstruction Finance Corporation to purchase and dispose of the negotiable instruments of any State or public body issued to finance any project included in the proposed comprehensive program.

Authorize the Secretary of the Treasury to establish a revolving fund to receive interest and amortization of these instruments, such receipts to be used to retire the R. F. C. obligations issued to purchase the local securities.

General Fleming offered his program not as a final and complete one, but as a suggestion of one way by which the States, municipalities and the Federal government, working together, could face the post-war adjustment period and at the same time eliminate blighted residential areas, rebuild cities and provide new schools, homes and other facilities needed by the people.

The kind of planning the country needs for the after-war adjustment, in his opinion, "will get most of the preliminaries out of the way now, before the end of the war. We will have the blueprints drawn and the specifications written. We will have the sites acquired. We will have had our councilmanic approval and our bond issues voted, if necessary; and, where Federal assistance is necessary, advance arrangements will be made for it. And then, when our present war plants shut down and start to re-tool, and our boys come back from overseas, we can pull our blueprints out of the cupboard, hand them to the contractor, conduct him to the site, and say, 'You start digging here tomorrow morning.'"

### Housing Activity Cited

While contemporary Government agencies were prophesying, Federal housing authorities reported on what has been done throughout the country in public

# SUB-CONTRACTORS WANTED

For information, blue prints, specifications, etc., on the following items write or telephone the Philadelphia or Baltimore office of the War Production Board, quoting the symbol number of the item in question. You will then be put in touch with the engineer assigned to that item. Please quote the Manufacturers Record.

## Ref. Roystuart-57-1

A Government Agency requires 22,000 SPRAY BODY VANES. Machine Tools required: Precision Lathe, No. 1 Universal Milling Machine. Material: Naval Brass, Type 1 Half Hard. Close Tolerance. Overall dimensions: Finished diameter—.330", length—.443". Solid. Material not supplied to contractor. Drawing—51365-5386.

## Ref. Roystuart-57-2

A Government Agency requires 112,522 3 TYPES SPECIAL CAP SCREWS. Machine Tools required: Automatic and Hand Screw Machines,  $\frac{1}{2}$ " spindle; Bench Type Miller, and Drill Press. Heat treat, cadmium plating. Overall lengths .938" to 1.031". Tolerances .005". Material: Steel—Navy Specification 49-S-2 Alloy #3. Material not supplied to contractor. Drawing 206344-12992 and others.

## Ref. Roystuart-57-3

A Government Agency requires 102,200 CHECK VALVE PLUNGERS. Machine Tools required: Automatic Screw Machine,  $\frac{1}{2}$ " spindle, Bench Milling Machine, Centerless Grinder. Tolerance .005" overall dimensions .281" x 1.950" long. Material: Brass—Navy Specification 16-B-6. Type 1 half hard. Material not supplied to contractor. Drawing 79238-5898.

## Ref. Roystuart-57-4

A Government Agency requires 4,700 SPACERS. Machine Tools required: Automatic Screw Machine— $\frac{1}{2}$ " Spindle. Heat treat, internal, cylindrical, and surface grinders. Material: Navy Specification 49-S-2, Alloy #3. Tolerance .0005". Finished overall dimensions 1.5" O.D. x 1.181" I.D. x .450" long. Drawing 173722-11628.

## Ref. Roystuart-57-5

A Government Agency requires 47,420 LOCATING PINS. Equipment required: Hand Screw Machine with  $\frac{1}{4}$ " Spindle. Material: Navy Specification 49-S-2, Alloy #2. Rockwell C-25 to C-30. Overall dimensions .188" O.D. x .250" long. All material to be furnished by contractor. Drawing 79232-8725.

## Ref. Roystuart-57-6

A Government Agency requires large quantities CONDUIT COUPLINGS, ADAPTERS AND CONNECTORS. Machine Tools required: Automatic Screw Machines, Spindles from  $\frac{1}{4}$ " up, Turret Lathes, Spindle size up to 4", Hand Screw Machines or Bench Lathes. Material: Aluminum Alloy, Hex Bar Stock, Specification AA-A-351, Cond. T, Specification QQ-A-601, Class 4; Specification AN-QQ-A-366. Overall dimensions O.D. from 11/16" to 3". Length from  $\frac{1}{4}$ " to 1 $\frac{1}{2}$ ". Tolerance .005". Material not supplied to contractor.

## Ref. Roystuart-57-7

A Government Agency requires up to 1600 RECOIL SPRING HOUSING ASSEMBLIES per month for the duration. Machine Tools required: Engine Lathe 14" swing; Butt welder for tubing O.D. 3.666", .150" wall. Swedging Machine to reduce 25/32" end of

tube from 3.666" O.D. to 2.612" O.D. Heat Treating. Pull test, 10 ton. Tolerance .005". Material: Seamless Steel Tubing, SAE 4640, and Drop Forgings, SAE 4640. The forgings will be furnished. Overall dimensions 14 $\frac{1}{2}$ " x 6 $\frac{1}{2}$ ".

## Ref. Roystuart-57-8

A Government Agency requires 37,570 ENGINE CONTROL ROD TERMINALS. Machine Tools required: Turret Lathe #3 Warner and Swasey or equivalent; Bench Drill Press and Milling Machine. Minimum 300 lb. Forge Hammer, Cadmium Plating. Tolerance .002". Material: SAE 1035 Steel Forgings. Overall size 1 $\frac{1}{4}$ " x  $\frac{1}{2}$ ". Material not supplied to contractor.

## Ref. Roystuart-57-9

A Government Agency requires large quantities of TURNBUCKLE EYES. Machine Tools required: Screw Machines from  $\frac{1}{4}$ " to 1 $\frac{1}{2}$ " spindles, Bench Milling Machine, Drill Press,  $\frac{1}{2}$ " Chuck. Tolerance .006". Material: Nickel Steel, Navy Specification 12-T-7. Overall dimensions from  $\frac{1}{4}$ " to 1.188" wide x 1.607" to 4.219" long. Material not furnished to contractor.

## Ref. Roystuart-57-10

A Government Agency requires 60,000 SHACKLES. Machine Tools required: 300 to 500 pound drop forge hammer; Drill Press,  $\frac{1}{2}$ " chuck. Tolerance .010". Material: Nickel Steel, Navy Specification 12-S-13, Grade 1, Overall dimensions .500" to 1.250" wide x 1.266" to 3.188" long. Material not furnished to contractor.

## Ref. Roystuart-58-1

A Government Agency requires large quantities of SWAGED TERMINALS, for wire Rope, Fork Type. Equipment required: Screw Machine Spindle sizes  $\frac{1}{2}$ " to  $\frac{3}{4}$ ", #1 Milling Machine, Single Spindle Drill Press, Polish and Passivate. Tolerance .005". Material: Corrosion resisting Steel, Navy Aeronautical Specification T-46d. Dimensions: .1875" to .3125" O.D. x  $\frac{1}{4}$ " to  $\frac{3}{4}$ " length. Material to be furnished by contractor.

## Ref. Roystuart-58-2

A Government Agency requires large quantities 6 types SWAGED TERMINALS, for Wire Roper, Turnbuckle Sleeve Type. Equipment required: Screw Machine, spindle size .1875" to .3125" Hex collets. Single Spindle Drill Press. Polish and Passivate. Tolerance .005". Material: Corrosion resisting Steel, Navy Aeronautical Specification T-46d. Dimensions: .1875" to .3125" O.D. x 2.616" to 3.439" length. Material to be furnished by contractor.

## Ref. Roystuart-58-3

A Government Agency requires large quantities of SWAGED TERMINALS, for Wire Roper, Sleeve Type. Equipment required: Screw Machines, spindle sizes .1875" and .250" Hex collets, and Single Spindle Drill Press. Polish and Passivate. Tolerance .005". Material: Corrosion Resisting Steel, Navy Aeronautical Specification T-56d. Dimensions: .1875" to .250" O.D. x 2.473" to

2.879" length. Material to be furnished by contractor.

## Ref. Roystuart-58-4

A Government Agency requires large quantities of SWAGED TERMINALS for wire rope—eyetype. Equipment required: Screw Machine, spindle sizes  $\frac{1}{2}$ " to  $\frac{3}{4}$ ", #1 Milling Machine, single spindle drill press, Polish and Passivate. Tolerance .005". Material: Corrosion resisting Steel, Navy Aeronautical Specification T-46d. Dimensions: O.D. .500" to .781" x 2.5" to 3.5" length. Material to be furnished by contractor.

## Ref. Roystuart-58-5

A Government Agency requires 3,996 CONTROL CABLE STOPS. Machine Tools required: Hand Screw Machine with 7/16" Hex collet. Tolerances .0025" threads NF-3 Cadmium Plating. Material: Steel, specification AN-QQ-S-646. Overall dimensions 7/16" O.D. x 1-9/16" long. All material to be furnished by contractor.

## Ref. Roystuart-57-6

A Government Agency requires 12 sizes of TURNBUCKLE BARRELS. Total requirements 180,298 pieces. Machine Tools required: Automatic and Hand Screw Machines, Spindles from  $\frac{1}{4}$ " to  $\frac{3}{4}$ ", and Bench Drill Press. Tolerance .005" threads, NF-3 Material: Brass, Navy Specification 46-B-20. Overall dimensions .250" to .875" O.D. x 2.25" to 4.25" length. All material to be furnished by contractor.

## Ref. Roystuart-58-7

A Government Agency requires 12,606 SPECIAL NUTS. Machine Tools required: Automatic or Hand Screw Machine equipped with 1-1/16" Hex-collet, nut topping; and Bench Drill Press. Tolerances: .010", NF-3 Material: Steel Bar, P.M.N., Grade B, Specification OS-829. Overall Dimensions 1-1/16" x  $\frac{1}{4}$ ". Material to be furnished by contractor.

## Ref. Roystuart-58-8

A Government Agency requires 102,986 THREADED ROD ENDS. Machine Tools required: Automatic Screw Machines, Hand Screw Machines with 5/16" to  $\frac{1}{2}$ " spindles. Cadmium Plating. Tolerance .002". Threads NF #3. Material: Steel, Specification AN-QQ-S-646. Overall dimensions 5/16" to  $\frac{1}{2}$ " O.D. x 1 $\frac{1}{4}$ " long. All material to be furnished by contractor.

## Ref. Keefer-47-1

A Penna. firm needs subcontracting facilities for the manufacture of BASE and ADAPTER. Size of Base: 4.200" O.D. length—1 $\frac{1}{2}$ ", weight—3 lbs. Size of adapter: 2-15/16" O.D., length—1-11/32", weight—11 oz. Forging facilities, Turret Lathes and Multi-Spindle Automatic Screw Machine needed for work. Materials required: Drop Forgings, and Cold Rolled Steel-W.D. 1115 Prime contractor can furnish Drop Forgings if necessary. Quantity to be produced: 500 of each per day. Various priority ratings; AA1, AA2, and balance A-1-a.

## Ref. Roystuart-59-1

A Government Agency requires large quantities of BEVEL GEARS for Aviation Engine—various types 20° to 30° stub tooth. Fellows and Gleason forms—1.375 O.D. to 2.479 O.D. Carbonize and harden. Tolerance close.

## Ref. Roystuart-59-2

A Government Agency requires large quantities of SPUR GEARS for Aviation Engine—various types 20° to 30° stub tooth. Fellows form—1 $\frac{1}{4}$ " O.D. to 5 $\frac{1}{4}$ " O.D., 3/16" to 2" width. Carbonize and harden. Tolerance close.

(Continued on page 59)



# NEW PRIORITIES

## PUT IN EFFECT DURING OCTOBER

**Acetic Anhydride**—M-23 restricts delivery and use and establishes allocation control except for users of 54 gal. or less during any one calendar month; use form PD-600 and 601.

**Agave Fiber, Products and Certain other Cordage**—M-84 (as amended 10-31-42) restates entire order with all amendments and imposes further restrictions on purchases, sales, deliveries and uses.

**Air Transportation Facilities**—P-47 (amended) assigns AA-1 rating to deliveries of material for maintenance and repair as requested for and authorized in PD-96; establishes rerating procedure; use form PD-96.

**Arsenic**—M-152 (as amended 10-21-42) clarifies definitions and restricts delivery and use except for small users who do not consume under certain conditions more than 650 pounds during any calendar quarter.

**Automotive Tires, Chains, and Parts**—L-201 prohibits use of any metal other than low carbon steel, and establishes limitations in types and sizes to be made.

**Automotive Vehicles**—M-216 Amend. #1 extends to 11-1-42 for the filing of PD-641.

**Balsa**—M-177 Amend. #1 clarifies meaning of balsa and scrap balsa according to the terms of the order and lifts restrictions as to sale, delivery or use of any Balsa which on August 3 had been manufactured in any size not exceeding 3/4" in thickness, 2 1/2" in width or 10" in length.

**Bed, Bed Springs and Mattresses**—L-49 (as amended) Int. #1 clarifies what operations can be included in assembly of final fabric. L-49 (as amended) Amend. #2 limits producers each calendar quarter to following total of iron and steel: 3 1/4 percent of total consumption of coil, flat and fabric types during year ending June 30, 1941; plus 6 1/4 percent of amount used during base period for box bedspring production; restricts to 15 pounds of steel for full size bedspring and 9 pounds of steel for single or twin size bedspring after December 1. Until then 30 pounds can be used in full size coil and 22 pounds in single or twin size of same type.

**Canned Foods**—M-86-b (as amended 10-26-42) prohibits canners from selling or delivering after Oct. 26, 1942 any part of their pack of certain fish packed between March 1, 1942 and February 28, 1943 except as authorized by this order. M-86-c and M-86-d revoked effective Oct. 26, 1942. M-237 (as amended 10-30-42) defines terms and restricts deliveries.

**Canning or Processing Fruits, Vegetables or Fish**—P-115 (as amended 10-27-42) assigns ratings for delivery of material needed for maintenance, repair and operation of plants.

**Canned Sauerkraut**—M-245 freezes all stocks until April 1, 1943, except to Federal Agencies.

**Cans Made of Blackplate**—M-136 Amend. #1 changes and adds to the items in Table A.

**Cans Made of Tinplate or Terneplate**—M-81 (as amended) Amend. #4 de-

letes Item #1 from Exhibit N, omits #7 from Table III and changes Item 7 in Table II.

**Cashew Nut Imports**—M-147 revoked effective 10-10-42 as subject is now covered by General Imports Order M-63 (as amended).

**Caskets, Shipping Cases, and Burial Vaults**—L-64-a restricts transfer of specified types except to Army, Navy and other government agencies; use form PD-590.

**Chemical Cotton Pulp**—M-157 (as amended 10-20-42) establishes allocation control except for delivery of 2,000 pounds or less in any one month in lots of not more than 500 pounds to any one customer; use forms PD-600 and 601.

**Chlorinated Hydrocarbon Solvents**—M-41 (as amended) Amend. #2 restricts users with rating of B-2 to fifty percent of such person's average monthly consumption during the base period.

**Clothing for Men and Boys**—L-224 restricts use of cloth in manufacture and otherwise establishes standardization and simplification procedures.

**Coal Stokers**—L-75 (as amended 10-20-42) restricts orders and deliveries of Class A stokers unless specifically authorized, and requires manufacturers to file schedule of production and deliveries; manufacture of Class B stokers is prohibited.

**Cocoa**—M-145 Amend. #1 permits any processor of beans to utilize not more than one-tenth of his quota for the preceding period if the portion carried over was not used during such period.

**Coffee**—M-135 Amend. #5 permits roasters to make delivery within ten days before the beginning of any quota period, of not more than one-fifth of quota for that period.

**Collapsible Tubes**—M-115 (as amended) Amend. #1 exempts gift kits or combination set boxes holding multiple units including filled Class III or Class IV tubes, the value of which do not exceed 25% of the total value from conforming with the used tube exchange, provided that such box is for direct delivery to a member of the armed forces.

**Combat Measuring Instruments**—L-203 restricts orders, sales and delivery of any instrument included in List A unless specifically authorized; use forms PD-675 and 676.

**Communications**—P-130 (as amended) Int. #1 clarifies meaning of "equipment of a superceded type." P-132 assigns ratings to operators for delivery of materials needed for maintenance, repair, operating supplies or operating construction and provides for extension of ratings. L-204 restricts production of telephone sets and prohibits manufacture after Nov. 16, with certain exceptions, unless specifically authorized.

**Construction**—L-41-b (as amended 10-2-42) removed restriction from construction begun prior to 1-1-43 necessary to installation of non-metallic insulation, pipe covering, weather strip-

ping and storm windows and doors when no rubber or cork is used and does not apply to construction begun prior to 1-1-43 which is necessary to conversion or substitution of heating equipment to permit use of fuel other than oil, electricity or gas (natural or manufactured).

**Conveying Machinery and Mechanical Power Transmission Equipment**—L-193 restricts orders, manufacture and deliveries except upon specific authorization or where manufacture on Oct. 7 was in process for orders accepted prior to Aug. 1, 1942; use form PD-682. L-193 Amend. #1 places restrictions on acceptance and placing of orders unless specifically authorized or required by Army, Navy, Maritime Commission or War Shipping Administration.

**Copper**—M-9-a (as amended) Amend. #1 changes rating from A-1-k to AA-5 and prohibits brass or wire mills from filling orders unless approved on form PD-591. M-9-c-4 (as amended 10-27-42) defines terms and products and restricts sales, deliveries and installations.

**Cotton (Imported Long Staple Raw)**—M-236 Amend. #1 defines this cotton as any imported raw cotton with staple length of grain 1 1/4 to 1-21/32 inches.

**Cotton Textiles for Agriculture and Food Processing Uses**—M-218 Sched. II Amend. #1 permits actual consumer to now use A-2 rating previously assigned to cloth merchants only.

**Cotton Textiles for Work Apparel**—M-207 Sched. I Amend. #1 brings Pin Check fabrics not previously included under provisions of Schedule I; changes classification of denim; removes cottonsuede, corduroy and moleskin fabrics, and moleskin and corduroy work pants from inventory restrictions. M-207 Sched. II Amend. #1 removes work gloves for seasonal use and materials from which they are made from inventory restrictions; also clarifies definition of "work clothing processors."

**Distilled Spirits**—M-69 (as amended effective 11-1-42) restricts production and use and establishes allocation control.

**Domestic Cooking Appliances**—L-23-c Amend. #3 effective December 26, 1942 changes paragraph (a) (8) to accessories for domestic cooking appliances means thermostats, closets, shelves, aprons, clocks, cast broiler pans, thermometers or any other instruments, attachments or appurtenances not essential to top-burner cooking, oven baking and oven broiling.

**Douglas Fir Lumber**—L-218 establishes general limitations on sales, shipments, and deliveries, and establishes directive for allocation control; use form PD-423. L-218 Amend. #1 eases restrictions under which a producer may sell, ship or deliver.

**Douglas Fir Plywood**—L-150 (as amended 10-8-42) establishes standardization and simplification, restricting manufacture and delivery accordingly except upon specific authorization; military orders and orders in process on 10-8-42 are excepted.

**Electronic Equipment**—L-183-a establishes procedure of allocation control. P-133 assigns A-1-j rating to deliveries of materials for operating supplies, maintenance and repair for both operators and suppliers, subject to specified restrictions; provides for application and extension of rating.

**Ethyl Alcohol**—M-30 (as amended)

(Continued on page 50)



# Important New Industrial Plants and Expansions in the South During October

## GEORGIA

**ATLANTA**—boiler plant building, etc.—A. Farnell Blair, Decatur, Ga., has contract for boiler plant building at Marietta Aircraft Assembly Bldg., Marietta, for Area Engineer; cost between \$100,000 and \$200,000; MacDougald Construction Co., Hemphill Ave., N. W., Atlanta, has contract for interior finish, main assembly building; Hardin & Ramsey, Inc., 161 Spring St., N. W., has contract for office and administration building; Robert & Co., Archts.-Engrs., Bona Allen Bldg., Atlanta.

**AUGUSTA**—magnesium sulphate plant—International Minerals & Chemical Corp., 20 N. Wacker Drive, Chicago, Ill., starting work on construction of plant for production of magnesium sulphate; will consist of 1-story building with approximately 14,000 square feet of floor space; wood; concrete floor; comp. roof; construction work by company forces with own engineers under supervision of H. R. Bates, production department, P. O. Box 69, East Point, Ga.; also plan production of silica-gel in this plant.

## KENTUCKY

Equipment—Defense Plant Corporation, executed contract with General Distillers Corp., 1726 Mellwood, Louisville for equipment to be placed in plant in Kentucky at cost in excess of \$15,000.

## LOUISIANA

Synthetic Rubber Production—H. K. Ferguson Co., Hanna Bldg., Cleveland, Ohio, has contract for plant at Baton Rouge and Lake Charles for Firestone Tire & Rubber Co.; Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh, Pa., procuring process equipment; new plants for which foundation has been started will be of wood and brick; gypsum plank and comp. roof; conc. floors; install power plant; steam heating plant; 3 five ton capacity elevators; general contractor has contract for heating and power plant, electric light and power, plumbing, elevator; composition roof will be sub-let.

**NEW ORLEANS**—buildings, etc.—Chris Larsen Co., Maritime Bldg., has contract at \$24,470 for boiler shop, welding school, auto repair shop and toilet building for Delta Shipbuilding Co., Inc., Florida Avenue on Industrial Canal; Lionel F. Favret, 937 Gravois St., has contract for constructing first aid building; Busy Electric Co., 520 Poydras St., has contract for all electrical work in connection with power and light system for new spar yard and additional circuits and outlets for gantry cranes; O. O. Carpenter, Plant Facilities Engineer.

## MARYLAND

**BALTIMORE**—woodwork shop—Booze Brothers Co., 1022 Key Highway, erect woodwork shop; 2-story; brick; owner builds.

**BALTIMORE**—detinning plant—H. K. Ferguson Co., Hanna Bldg., Cleveland, Ohio, has contract to design and construct addition to can preparation equipment at existing detinning plant at Baltimore for Defense Plant Corp.

**BALTIMORE**—warehouse—A. A. La-Fountain, Inc., Hackensack, New Jersey, has contract for warehouse and agency building, 240-44 N. Franklinton Rd. for Jack H. Lehman, National Biscuit Co., Lessee; Arthur P. Starr, Archt., 1711 Connecticut Ave., N. W., Washington, D. C.; brick and frame; 1-story; cost \$65,000.

**BALTIMORE**—building—Consolidated Engineering Co., Inc., 20 E. Franklin St., has contract for test building, Broening Highway, for Western Electric Co.

**BALTIMORE**—alteration—Consoli-

## Contracts Awarded

dated Engineering Co., 20 E. Franklin St., has contract for alterations to building, Highlandtown, for Crown Cork & Seal Co., Inc.; Lucius R. White, Jr., Archt., 10 W. Chase St.

**BALTIMORE**—building—Western Electric Co., erect temporary building, 2800 Broening Highway; cost \$10,000; owner builds.

**BALTIMORE**—storage building—L. Schoenlein & Son, 3006 Parkside Drive, has contract for storage building, 3236 Eastern Ave., for William Haussner; Kubitz & Koenig, Archts., Emerson Tower Bldg.

**SPARROWS POINT**—oxygen building—Following have sub-contracts for oxygen building, for Air Reduction Sales Corp., J. E. Fricker, Ch. Engr., 60 E. 42nd St., New York City; W. E. Bickerton Construction Co., 101 W. 22nd St., Baltimore, Gen. Contr.; Millwork, Walbrook Mill & Lumber Co., 2636 W. North Ave.; rein. steel, Bethlehem Steel Co., Sparrows Point; steel, misc. iron, Charles A. Gareis, 1417 Carswell St.; glass, Swindell Bros., Inc., Bayard and Russell Sts.; painting, Charles A. Schmick, 719 Cider Alley; roofing, Fringles Co., 2256 Reisterstown Rd., all Baltimore; United Engineers & Constructors, Inc., 1401 Arch St., Philadelphia, Pa., Engrs.

**FAIRFIELD**—buildings—Leimbach & Williams, 30 W. Biddle St., Baltimore, has contract for locker room buildings and foundation for platen table and pipe bending, for Bethlehem-Fairfield Shipyard, Inc.

## MISSISSIPPI

**PASCAGOULA**—loading platform—U. S. Maritime Commission let contract to Ernest Construction Co., 174 Louise St., Mobile, Ala., for loading platform at Ingalls Shipyard plant; cost \$84,000.

## MISSOURI

**ST. LOUIS**—factory—Kloster Co., 5215 S. Grand St., has contract for \$15,000 factory, 2002 N. 9th St., for Porbeck Manufacturing Co., 2019 N. Broadway; J. E. Turling, Archt., 414 W. Kossuth St.; 1-story; 75-140 ft.; conc. found.; comp. roof; forced air heat.

**ST. LOUIS**—can shredding plant—H. K. Ferguson Co., Hanna Bldg., Cleveland, Ohio, has contract for facilities to shred cans for compact shipping to detinning plants for Defense Plant Corp., 811 Vermont Ave., N. W., Washington, D. C.

**ST. LOUIS**—addition—Murch-Jarvis Co., Cotton Belt Co. has contract for addition to factory, 4171 Bingham St. for The Alligator Co.; A. C. Maack, Archt., care of Contr.; brick and rein. conc.; 1-story; 72x110 ft. and 24½x73 ft. and 18½x20 ft.; 3 buildings; cost \$50,000.

**ST. LOUIS**—addition—Lewis Invisible Stich Machinery Co., 3763 Forest Park, let contract to M. Sachs, 3227 N. Broadway, for 1-story addition; 29x106 ft.; conc. found.; tar and gravel roof.

## NORTH CAROLINA

**GREENSBORO**—pipe line—Lockwood, Kessler and Bartlett, Inc., with home offices in Brooklyn, New York, local offices 412 Guilford Bldg., Greensboro, have contract for surveying oil line to be built from Greensboro to Richmond, Va.; Williams Brothers, National Bank of Tulsa Bldg., Tulsa, Okla., has contract for dismantling 8-in. part of pipe line system owned by Illinois Pipe Line in southwest Texas, purchased by Defense Plant Corp. for use in constructing oil line extension from Greensboro to Richmond, Va., for Plantation Pipe

Line Co., Guilford Bldg., Greensboro; contract for construction of line to be let soon.

## OKLAHOMA

**OKLAHOMA CITY**—addition—Smelser Construction Co., Inc., 2016 N. Broadway, has contract for addition to building, 414 W. Noble Ave. for Oklahoma Transportation Co.

**ROGERS COUNTY**—manufacturing plant—Long Construction Co., Philtower Bldg., Tulsa, has contract for buildings, repair work, etc., at plant in Rogers County, for Defense Plant Corp.; Charles Draper Faulner, 307 N. Michigan, Chicago, Ill., Archt.; cost under \$500,000.

## TENNESSEE

**MEMPHIS**—chemical plant—Southern Acid & Sulphur Co., Inc., Joseph Mullen, Pres., Rialto Bldg., St. Louis, Mo., has begun work on large chemical plant on Jackson Blvd., north of Buckeye Cotton Oil Mill; cost about \$3,000,000; will be operated for Defense Plant Corp.; Lummus Co., 420 Lexington Ave., New York City, is the contractor; J. J. Hanson, is superintendent of construction for the contractors at Memphis.

## TEXAS

**BEAUMONT**—building—Following have sub-contracts for office building, Laurel & Second Sts. for International Derrick & Equipment Co.; Ace Plumbing Co., 1863 College St., plumbing; Hnote Electric Co., 1498 College St., electric work; Beaumont Material Corp., 600 Pine St., roofing; George Hilton, 4080 Ogden St., painting; Steinman & Golemon, Archt., Liberty Bldg.; Herman Weber, Perlstein Bldg., Gen. Contr.; cost \$21,500.

**BEAUMONT**—remodeling—G. Sargi, Liberty Bldg., has contract for remodeling building; for Oil City Brass Works, 326 Neches St.; erect masonry and steel building; conc. found.; conc. floors; built-up roof; Steinman & Golemon, Archts., Liberty Bldg.

**DALLAS**—detinning plant—H. K. Ferguson Co., Hanna Bldg., Cleveland, Ohio, will construct plant to remove tin from shredded cans before they are shipped to copper mills; Defense Plant Corp., owner; L. B. Strange, manager of Shredded Steel Co., 2943 Oak Lane, interested.

**LONGVIEW**—steel plant—Madaras Steel Corp., Julius D. Madaras, Pres., will resume work on steel plant at Longview; U. S. Bureau of Mines engineers proceeding immediately to start work on ore reduction plant in cooperation with company's engineers; work to be carried out under supervision of Bureau of Mines; company has completed arrangements for loan of \$125,000 from RFC to be used for developing present electric melting plant into a steel foundry.

**MERCEDES**—packing plant—Missouri Pacific Railway, C. S. Kirkpatrick, Ch. Engr., Houston, rebuild packing plant, 19 Ohio St.; brick and frame; 1- and 2-story; C. E. Buddy Watson Co., Mercedes, Lessee.

## VIRGINIA

Equipment—Defense Plant Corp. executed contract with A. Smith Bowman, Sunset Hills, for equipment to be placed in plant in Virginia; cost in excess of \$7,500.

**LURAY**—expansion—Luray Textile Corp. started work on an addition to building; cost \$20,000; 50x150 ft.; will be used for storage; D. B. Coffman in charge.

## SOUTH

Rust Engineering Co., Pittsburgh, Pa., has been awarded a sub-contract at less





than \$3,000,000 for erection of 35 concrete structures for a synthetic rubber plant in an east central state; structures will include administrative buildings, warehouses, service and processing buildings; sub-contract was awarded by Koppers Co., Pittsburgh, Gen. Contr., which will also operate the plant on lease; plant will convert grain alcohol to butadiene and will also produce styrene; install. is of a type known as "rubber plant," rubber will not be made actually on the location.

## Contracts Proposed ALABAMA

Power lines—Alabama Power Co., Birmingham, applied to War Department for authority to construct overhead power transmission lines crossing Black Warrior River at two points—one at Locust Fork, near Maxine, about 7.5 mi. above its mouth, and about one-half mile upstream from highway bridge; plans call for vertical clearance of not less than 115 ft. above mean low water; other is at Mulberry Fork, near Gorgas and approx. 13 mi. above its mouth, line to have vertical clearance of 82 ft. above mean low water; U. S. Engineer Office, Mobile, is handling project.

GEORGIANA—freeze plant—Rowe Johnson, Vocational Agriculture Teacher, Georgiana High School, interested in erection of \$75,000 quick freeze plant.

LISTER HILL—expansion—Reynolds Metals Corp., R. S. Reynolds, Pres., general offices at Richmond, Va., plans \$5,000,000 expansion at plant at Lister Hill; plant processes raw bauxite, also fabricates metallic aluminum.

## ARKANSAS

HELENA—expansion—Helena Cotton Oil Co., J. A. Adelman, Plant Manager, will enlarge plant for crushing of soybeans.

WILSON—dehydrating plant—Department of Agriculture approved Wilson as site for vegetable dehydrating plant; will convert portion of Wilson packing plant buildings for plant.

## LOUISIANA

Pipe line—United Gas Pipe Line Co., Shreveport, authorized by Federal Power Commission, to construct a connection linking LaFourche Crossing Field in Louisiana with its pipe line that extends from Gibson Field to Ertette-Mobile line; estimated cost \$127,000.

Pipe line—Shell Pipe Line Corp., Houston, Tex., applied for permission to lay 10-in. pipe line on bottom, under and across Houston River, near Buhler, La.

Recycling plant—State Department of Conservation, Baton Rouge, is expected to issue order soon for construction of \$3,000,000 recycling plant at Erath oil field; construction to be started by Nov. 1 and plant completed by next summer; plant is to be utility for use of the Texas Co., New Orleans, and other companies operating in the field; Texas Co. will operate it; since the process used recovers certain critical petroleum materials needed in aviation and other war enterprises, construction material for the project will be available.

NEW ORLEANS—protection bulkhead—Shourds & Hooten, Engrs., 642 Audubon Bldg., opened bids Oct. 26 at office of O. O. Carpenter, plant facilities engineer of Delta Shipbuilding Co., Inc., for piling, excavation and concrete work for construction of protection bulkhead; following submitted estimates: Chris Larsen Co., Maritime Bldg.; Otis W. Sharp & Son, Inc., 1838 Robert St.; A. N. Goldberg, Maison Blanche Bldg.; R. P. Farnsworth & Co., Inc., 1515 S. Salcedo St.; Boh Brothers Construction Co., 2400 Cypress St.; Gervais F. Favrot, Balter Bldg.; W. Horace Williams Co., Southern Bldg., all New Orleans.

## MARYLAND

CURTIS BAY—process plant—U. S. Industrial Chemicals, Inc., 60 E. 42nd St.,

New York, has plans in progress for \$1,000,000 process plant; authorized by Defense Plant Corp.; brick; United Engineering & Constructors, Inc., 1401 Arch St., Philadelphia, Pa., Engrs.

MIDDLE RIVER—storage building—Glenn L. Martin Co., Paul Tignor, Chief Engr., received bids Oct. 23 for storage building; 1-story; brick; Albert Kahn & Associates, Inc., Detroit, Mich., Archt.-Engrs.; Consolidated Engineering Co., 20 E. Fayette St., Baltimore and Mahony Troast, Passaic, New Jersey, estimating.

## MISSOURI

KANSAS CITY—booster pump stations—Great Lakes Pipe Line Co., granted high priority rating for materials needed to install 7 relocated booster pump stations on its lines between Kansas City and Minneapolis.

ST. LOUIS—packaging plant alterations—American Packing Co., 3842 Garfield Ave., is having plans prepared by Henschien, Everds & Cromble, Archts., 59 E. Van Buren Ave., Chicago, Ill., for packing plant alterations at 3833 Cote Brillante Ave.; work will involve modernizing, reconstructing, rearranging and improving present abattoir.

ST. LOUIS—equipment manufacture—Clearview Equipment & Manufacturing Co., 3000 Chouteau Ave., purchased two buildings at 1312 and 1318-20 South Grand Blvd., and will alter for its use; two structures, contain 17,800 sq. ft. of floor space, the larger at 1318-20 having dimensions of 50 by 130 ft., 2 stories and small basement for steam heating plant, concrete construction; company handles sandblast equipment.

ST. LOUIS—rug factory, etc.—St. Louis Carpet Co. leased building at 5190 Delmar Blvd. and will use as rug factory and branch office; structure is 1 story, 50 by 147½ ft., contains approx. 7,400 sq. ft. floor space, facade of white tile and plate glass; has been occupied by Glick's Laundry; Walter J. Harms is president of St. Louis Carpet Co.

ST. LOUIS—building—Artophone Corp., 4200 Forest Park Blvd. acquired building, 12th Blvd. and Walnut St.

## NORTH CAROLINA

Dehydration plant—State Office of War Production Board approved erection of food dehydration plants at Hendersonville, Charlotte, Winston-Salem and North Wilkesboro; office of Board at Charlotte.

HICKORY GROVE—airplane shop—C. Foley Co. of Roosevelt Field and Mineola, Long Island, New York, has acquired a lease on Aero Center at Hickory Grove, near Charlotte, for establishing an airplane and airplane engine overhaul shop, administration buildings and main hangar will be converted into modern shops; reconstruct 3 runways at Hickory Grove field; local address of Charles L. Foley, Shannon Lane.

HIGH POINT—plant—Owen Reese acquired building on English St. occupied by High Point Bonded Warehouse.

NORTH WILKESBORO—dehydrating plant—J. B. Snipes, Wilkes county agent and Carl E. Vandeman, interested in movement to establish dehydrating plant for Wilkes and several other northwestern North Carolina counties.

WINSTON-SALEM—plant—Carolinas War Production Board, Charlotte, approved application of T. W. Garner Food Co., Patterson Ave., to convert plant for dehydrating plant.

## OKLAHOMA

GUYMOM—carbon black plant—Cabot Carbon Co., granted permit by State Corporation Commission, Oklahoma City, to construct carbon black plant near Guymon in Oklahoma sector of Hugoton gas field; will process approximately 7,000,000 cu. ft. of gas daily.

## SOUTH CAROLINA

COLUMBIA—power project—South Carolina Electric & Gas Co., applied to Fed-

eral Power Commission, for license for constructing project on Broad River in Richland County known as Columbia development and consisting of timber crib dam, 1021 ft. long and 14 ft. high; a reservoir extending 1½ miles above the dam; a canal and a steel frame brick power house having installed capacity of 13,100 h.p.

GAFFNEY—manganese deposits—Dr. W. P. Jacobs, Clinton, chairman of the State Council of Defense, announces that Bureau of Mines, Washington, D. C., has made \$10,000 available for establishing pilot test plant in Cherokee County to utilize manganese deposits in county.

## TEXAS

DAINGERFIELD—plant—Lone Star Steel Co. applied to War Production Board for an increase from \$14,550,000 to \$17,780,000 in the allotment for blast furnace project under construction; increase to provide for purchase of a specially designed battery of coke ovens with by-product facilities for producing ammonium sulphate and other basic ingredients.

LONGVIEW—pipe line—War Emergency Pipe Line Corp. which recently awarded contracts for construction of 24-in. pipe line from East Texas to Norris City, Ill., plans to extend the line to the Atlantic seaboard, crossing Indiana, Ohio, and on to Phoenixville, Pa.; extension will cover 857 mi. and cost \$60,000,000; branch lines will be laid to the New York and Philadelphia areas; will assure daily direct delivery of 300,000 barrels of crude oil to the Eastern seaboard; Donald M. Nelson, Chmn., War Production Board, announces 224,000 tons of steel will be allocated for the extension; Defense Plant Corp. will finance the extension upon the same terms and conditions it is financing the 530-mile line from Longview to Norris City; first deliveries to East Coast expected about June 1, 1943.

PORT ARTHUR—pipe line—Texas Co., 720 San Jacinto Co., Houston, preparing to lay a 150-mile pipe line from its refinery at Port Arthur to the Paradis field, St. Charles Parish, Louisiana; plans include 10-in. line from refinery to Erath field, Vermillion parish.

TEXAS CITY—tin processing—Tin Processing Corp. may expand plant to meet requirements of Metals Reserve Co.; Charles B. Henderson, Chmn. of Board of RFC.

## VIRGINIA

RICHMOND—power station—Virginia Electric & Power Co. proposes to borrow \$4,000,000 to finance cost of new power station on James River in Chesterfield County; estimated cost of plant and transmission lines, \$6,500,000; construction under way.

## Progress on the 24-Inch Oil Pipeline

The last piece of 24-inch pipe for the 530-mile oil pipe line being constructed by War Emergency Pipe Line, Inc., between Longview, Texas and Norris City, Ill., has left the Lorraine, Ohio works of the United States Steel Corp. subsidiary, National Tube Company, exactly four months to the day from the time the work was begun.

The 24-inch pipeline will start delivering about half of its full capacity of 300,000 barrels a day to Norris City as soon as sufficient pumping equipment is installed to maintain adequate pressure for the 530-mile flow.

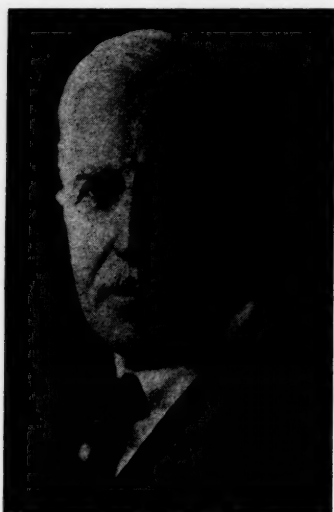


## George M. Verity

George M. Verity, Chairman of the Board of the American Rolling Mill Company, passed away suddenly at his home in Middletown, Ohio, November 6.

Industrial America, and the steel industry in particular, has suffered a great loss. Those who knew Mr. Verity recognized in him a character of boundless vision and tremendous energy who refused to accept any outlook save that of success to follow hard work and faith in the American ideals in which he believed unflinchingly.

From the depths of the depression he lived to see his great enterprise reach



George M. Verity

new heights of production and earning power. It was only in the recent past that he was present at the dedication of a giant new steel plant which his company started in the state of Texas, and in the late summer he officiated in the dedication of the new large blast furnace which the American Rolling Mill Company erected at Ashland, Kentucky, thus indicating his faith in the future of the South as a rapidly growing industrial empire.

The loss of George M. Verity is a great one. He was an inspiration not only to his associates, but to all who knew him.

## Radio Waves Used in Process to Save Tinning Sheet Steel

Radio has been pressed into service to thwart the Japs' seizure of the world's main tin resources.

Waves at a frequency of 200,000 cycles per second form the basis of a method developed by G. E. Stoltz, engineering manager of the Metal working section of Westinghouse Electric and Manufacturing Co., who conceived the idea of using the high frequency current to heat the tin coating to the point where it would form an even, polished surface

over the steel sheet used as the basis for what is commonly known as tin plate.

The process was demonstrated last week in the Baltimore plant of Westinghouse where a pilot plant had been set up by H. C. Humphrey, special electronic application engineer of the company. A 10-inch wide strip of steel, which had been coated with tin electrolytically, was publicly passed through a copper tube coil altogether ten inches long in the final step toward perfection of the electrolytical method of producing the tinplate which is so vital to the preservation of food used by the country's military forces.

Utilization of induced current, instead of electricity traveling through the usual conductor, according to Westinghouse officials, does away with unwieldy furnaces which must of necessity be longer than the induction heating coil of the new process. The water-cooled, copper coils which the current is induced to the tinplate is heated by current raised to high frequency by vacuum oscillators, essentially the same as the transmitter of a radio station. A commercial installation using the new development is already operating at the rate of 60 tons daily.

Through use of the process about one-half of the tin usually required by the dip method will be saved. Tin deposited by electrolysis is 30 millionths of an inch thick. The radio waves heat the deposits so that minute hills of tin are melted down and the valleys are filled in to form an even coating.

## Raw Petroleum Coke Production to be Increased

To increase the production of raw petroleum coke, approximately 30 refineries are being called upon to raise their output of this product.

The action to increase coke production was taken in OPC Recommendation No. 56, which states that the current deficiency in raw coke production can be partly corrected "by the fullest capacity operation of existing coking facilities in certain refineries best adapted to the production of such coke from the standpoints of availability of raw materials, character of equipment and operation, accessibility to transportation and effect on the production of war products."

Owners of the scheduled refineries presently covered by this recommendation are:

Cities Service Oil Co.; Sinclair Refining Co.; Gulf Oil Corp.; Shell Oil Co., Inc.; Standard Oil Co. of Indiana; Standard Oil Co. of Ohio; The Texas Co.; Kendall Refining Co.; Utah Oil Refining Co.; Union Oil Co. of California; Magnolia Petroleum Co., and Socony-Vacuum Oil Co., Inc.; Continental Oil Co.

## C. McD. Davis Appointed President of Atlantic Coast Line Railroad

At a meeting of the Board of Directors on October 15th, Mr. Champion McDowell Davis was elected president of the Atlantic Coast Line Railroad to succeed Mr. George B. Elliott, who becomes Chairman of the Executive Committee.

Nearly fifty years ago, March 1, 1893, to be exact, a North Carolina farm boy sought and obtained the position of messenger in the freight station of the Wilmington & Weldon Railroad. This was the start of Mr. Davis' career. That career, from messenger to President, followed the hard way and presents an inspiring example of the ultimate reward that attends hard work and applied intelligence. Also, that rise from messenger to President was concurrent with



C. McD. Davis

the rise of the present Atlantic Coast Line from a group of numerous small railroads, entirely unrelated or only loosely related, to a unified and strong Railroad System, among the Nation's best.

Since early in 1893 Mr. Davis has been in the service of the Coast Line, or its predecessor companies, continuously until today, save only for two short furloughs, one in 1898 when he volunteered for the Spanish-American War, and later also due to war conditions, when he served on the staff of the United States Railroad Administration as Member, Southern Freight Traffic Committee, following World War I.

Mr. Davis was vice president in charge of traffic of the Atlantic Coast Line from 1928 until 1939. He was then made vice president of all departments and subsequently became executive vice president in April, 1940. In addition, Mr. Davis serves as officer or director in a large number of related railway, bridge and terminal companies.

nted  
oast

Direct-  
on Mc-  
lent of  
to suc-  
comes  
mittee.  
, 1893,  
m boy  
of mes-  
e Wil-  
is was  
at ca-  
t, fol-  
an in-  
eward  
ied in-  
mes-  
t with

Coast  
small  
only  
strong  
ation's

s has  
ne, or  
iously  
et fur-  
teered  
, and  
when  
United  
n as  
Com-

nt in  
Coast  
s then  
ments  
e vice  
lition,  
tor in  
ilway.

OR



## EVERY DIESEL STOPPAGE IS A THREAT TO VICTORY!

Here's how to maintain steady operation with fewer periods of overhaul.

You have higher production quotas to meet—and breakdowns now mean precious man-hours lost.

What's more, with priorities on parts you'll be lucky if you can replace them at all.

Why not let a Cities Service lubrication engineer lend you a hand? His broad maintenance experience—plus special Cities Service instruments available to him—enable him to assist you materially in keeping your engines

in continuous operation at top efficiency for long periods.

There is no charge for this friendly consultation. Simply call or write our office nearest you.

You also will be interested in our booklet, "Diesel Lubrication." A copy sent free to the personnel of Diesel oil users. Just clip and mail the coupon below. There is no obligation, of course.

OIL IS AMMUNITION—USE IT WISELY!

	Write to — <b>CITIES SERVICE OIL COMPANY</b> Room 1326, Sixty Wall Tower, N. Y. or any of the following offices: <b>CHICAGO • CLEVELAND • ST. PAUL</b> <b>KANSAS CITY • BOSTON • TORONTO</b> or to <b>ARKANSAS FUEL OIL COMPANY</b> <b>SHREVEPORT • ATLANTA • BIRMINGHAM</b>	Please send me your booklet, "Diesel Engine Lubrication." <small>M. R.</small>
		Name _____ Firm Name _____ Address _____ City _____ State _____

A LUBRICANT FOR EVERY INDUSTRIAL NEED

NOVEMBER NINETEEN FORTY-TWO

39



## Two New Synthetic Rubber Plants for Louisiana

Receipt of contracts from the Defense Plant Corp. for the design and construction of two synthetic rubber plants, both in Louisiana, is announced by H. K. Ferguson Co., industrial engineers and builders of Cleveland and New York.

Engineering for the two plants, which will be operated by the Firestone Tire & Rubber Company, is being done in Pittsburgh in collaboration with the Blaw-Knox Company, process engineers for the project.

Construction on the two facilities already has started according to H. K. Ferguson, President of the Building Company, who announced the appointment of Guy B. Panero as project manager.

Expressing gratification on the early progress of the jobs, and stating there has been a keen spirit of cooperation to get the plants into operation as quickly as possible Mr. Ferguson said, "Synthetic rubber is first in the rank of importance among our various war jobs, and it is pleasing to note that the

need of synthetic rubber at the earliest possible date is being realized by everyone."

The plants will manufacture synthetic rubber from butadiene furnished at one location by Standard Oil of Louisiana and at the other by Cities Service, Inc.

## War Statistical Progress Report

### United States Financed War Program (Preliminary)

Total authorized war program, July, 1940 - October, 1942 .....	\$240,000,000,000
Total disbursements, July, 1940 - October, 1942 .....	55,700,000,000
October, 1942 .....	5,700,000,000
September, 1942 ....	5,500,000,000

### Plant Expansion

Government commitments for war plant expansion, June, 1940 - September, 30, 1942 .....	\$13,474,000,000
--	------------------

Private commitments for war plant expansion, June, 1940-September 30, 1942; 10,239 Certificates of Necessity approved .. 3,422,000,000

### Merchant Vessels Delivered

Number of merchant ships delivered:	
October, 1942 .....	80
January - October, 1942 ...	539
Tonnage delivered (dead-weight tons):	
October, 1942 .....	884,000
January-October, 1942 ....	5,986,000

### Sales of War Bonds

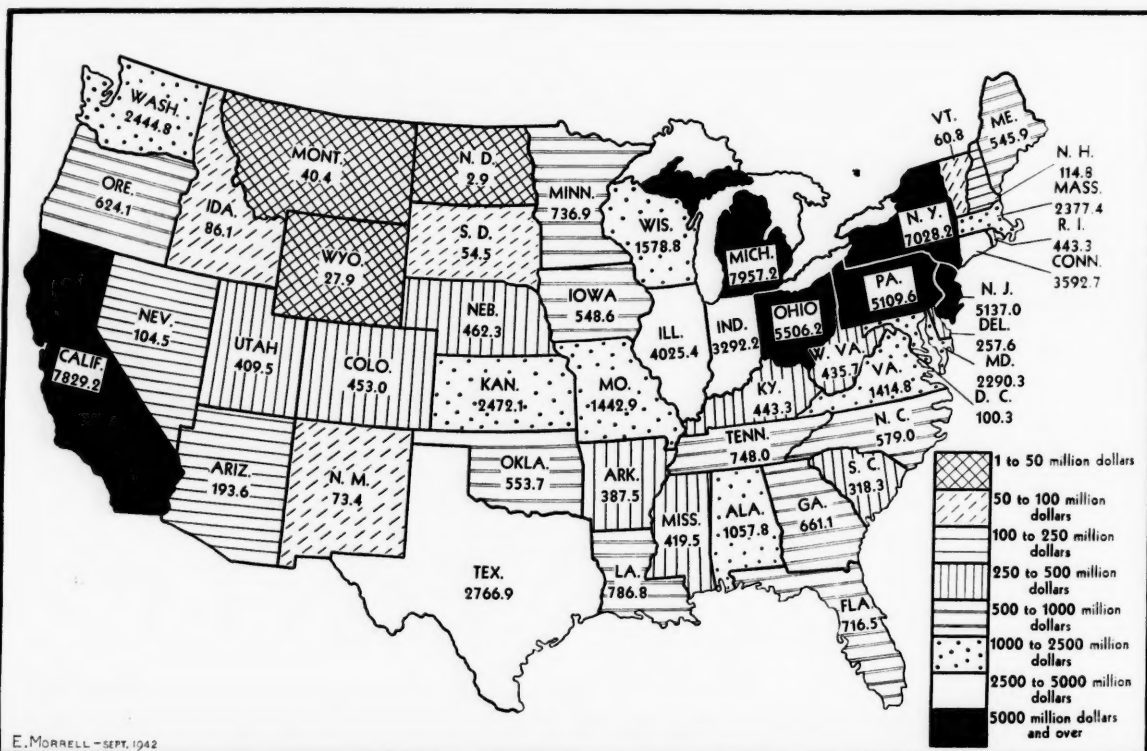
Cumulative, May, 1941 -	
October, 1942 .....	\$9,945,000,000
October, 1942 .....	\$14,000,000
Quota for October ....	775,000,000
September, 1942 .....	\$38,000,000

### Federal Debt Under Statutory Limitation

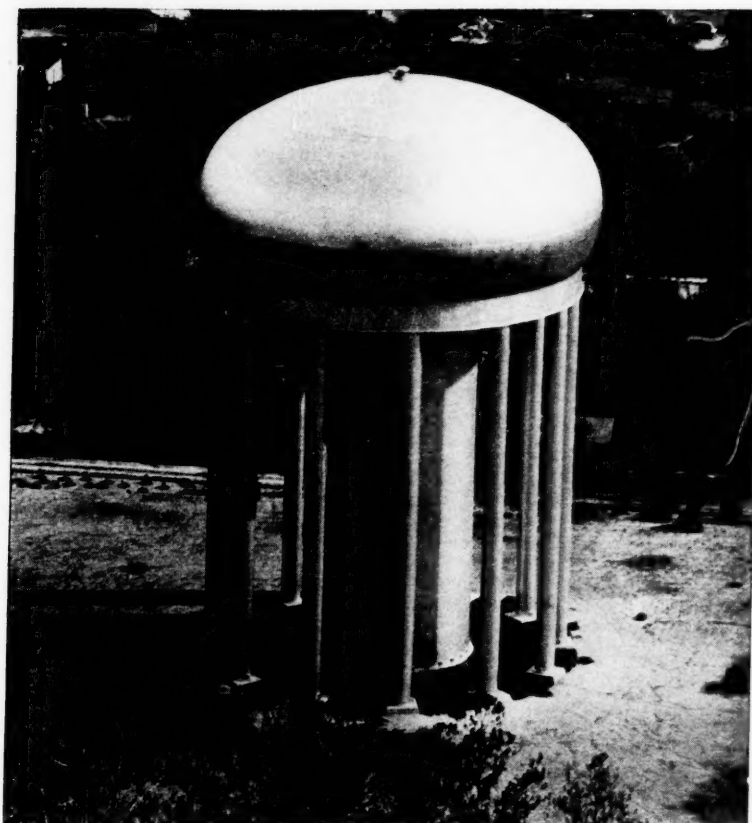
Outstanding, as of October 31, 1942 .....	\$95,365,000,000
---	------------------

Due to circumstances beyond our control, the compilation of statistics concerning War Contracts and Allocations to Southern States for the period June, 1940, through August, 1942, which would normally appear here, has been unavoidably delayed. Readers who particularly wish to have this information will be provided with a copy upon written application as soon as it is available. This feature of the Manufacturers Record will be continued. For the benefit of those who do not have a copy of the October Manufacturers Record we are reprinting below last month's statistical map.—Editor.

War contracts and allocations of all Federal agencies and British Empire purchasing missions through July was \$88,722,129,000. Of this, \$15,122,332,000 has gone to southern states. Totals for each state in millions of dollars are shown in the map below.







## ELEVATED STEEL WATER TANK of Spheroidal Design

Spheroidal tanks have been used for more than a decade for the storage of volatile liquids in the oil industry. There are also several typical Hortonspheroids used for the storage of water.

The first elevated water tank of spheroidal design was built in the South—at Jonesboro, Ark. It has a capacity of 1,000,000 gals. and is 70 ft. to bottom. The bottom of the tank is a segment of

a torus, the inner edge of which is supported on a 33-ft. diameter standpipe. The outer portion of the tank is carried on a ring box girder, supported on twelve columns 48 in. in diameter.

When steel is again available for municipal waterworks, modern spheroidal designs with adequate capacities within a low range of head will be obtainable.

**ELEVATED STEEL TANKS**—Provide gravity water pressure for general service or fire protection. Bulletin entitled *Fire Protection* contains general data and tables of standard capacities from 5,000 to 500,000 gals. for ellipsoidal-bottom and hemispherical-bottom types. Bulletin entitled *Radial-cone Bottom Elevated Water Tanks* contains illustrations of tubular and structural column radial-cone tanks in large capacities. This design used for capacities of 500,000 to 2,000,000 gals. for municipal service with 25 to 35 ft. range in head.

**STORAGE TANKS**—Flat-bottom tanks with cone or special roofs for the storage of oil, water or other liquids. *Technical Bulletin Number 11* contains complete table of standard barrel capacities for oil tanks, standard gallon capacities for water tanks and A.P.I. designs.

## CHICAGO BRIDGE & IRON COMPANY

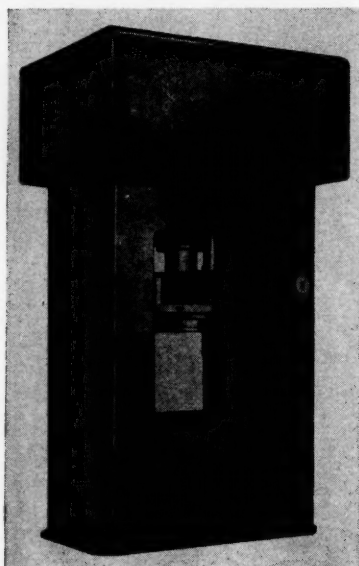
Birmingham .....	1530 North Fifth Street	New York .....	3313-165 Broadway Bldg.	Philadelphia .....	1619-1700 Walnut Street Bldg.
Houston .....	5614 Clinton Drive	Cleveland .....	2216 Guildhall Bldg.	Detroit .....	1510 Lafayette Bldg.
Tulsa .....	1611 Hunt Bldg.	Chicago .....	2106 McCormick Bldg.	Havana .....	402 Edificio Abreu
San Francisco .....	1040 Rialto Bldg.	Greenville .....	York Street	Washington .....	330 Bowen Bldg.

Plants in BIRMINGHAM, CHICAGO and GREENVILLE, PA.

## New Methods and Equipment

### Multi-Purpose 100-Ton HydroOILic Press

Designed for widely varying operations in assembling, pressing, and straightening, a multi-purpose, open-side HydroOILic press, 100-ton capacity, is announced by The Denison Engineering Company, Columbus, Ohio. It is said to be suitable for either small-lot or production line



work. The frame is of welded steel, while the cylinder assembly is of cast steel. The unit is available with either a guided platen or a threaded ram. Maximum stroke of the ram and maximum throat opening are 18 inches. Vertical opening is 36 inches and working pressure up to 2,000 pounds per square inch.

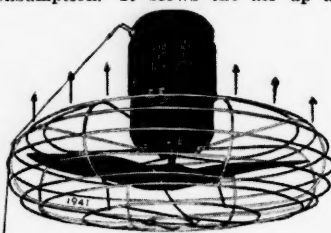
### Treated Wood Manhole Cover

As a result of the development of pressure-treated wood manhole covers, originated by Alfred Jones, county surveyor and engineer, and C. E. Arnold, chief deputy, of Los Angeles County, California, many tons of cast iron may be released for armaments. The cover is made with laminated wood strips fashioned in either hexagonal or circular shape, plans calling for nailing the 2-inch by 4-inch by 8-inch laminated strips with four 20 penny nails to each strip, and running at least two 3/4-inch bolts through all members, countersinking the bolt ends. Wood dowels and waterproof glue may be used in place of the nails and bolts, where it is difficult to procure the latter. The hexagonal cover is 37 1/2 inches in overall diameter and 32 1/2 inches between opposite faces, while the faces are 18 3/4 inches. Weight of the metal-bound cover is about 130 pounds, and the glued-in dowel cover slightly less. Lumber requirements are

63.3 board feet of No. 1 common Wolmanized or creosoted Douglas fir, product of American Lumber & Treating Company, Chicago. The frame requires 0.14 cubic yards of class "A" concrete. Preservative treatment of the wood by a pressure-impregnation process, in accordance with standards of the American Wood-Preservers Association, is specified.

### RECO Heat Circulator

The Reynolds Electric Company, Chicago, Ill., has introduced a new room heat circulator which is claimed to make possible comfortable rooms with less fuel consumption. It blows the air up and



### RECO Heat Circulator Makes Rooms Comfortable with Less Fuel Consumption

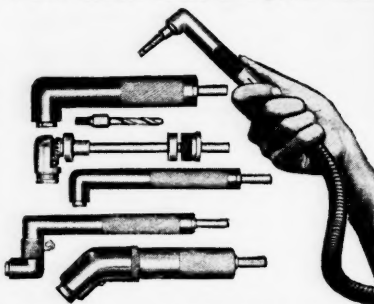
forces it to travel along the ceiling and down the sides of the room and up the center again, thus putting all air in gentle motion without annoying drafts, while making for a uniform temperature. The circulators may be supplied with 20-inch and 24-inch propellers.

### Heat Resistant Gloves and Flame-Proof Suits for Industrial Use

C. Walker Jones Company, East Germantown, Philadelphia, Pa., manufacturer of heat-resistant gloves and flame-proof suits, furnishes each new purchaser of work or heat-resistant gloves, a set of Time-Study cards upon which the buyer can record the service life of the gloves and so determine their cost-per-day. The gloves are made on a special pile fabric machine that knits thousands of tiny air pockets into the fabric which act as insulators.

### Small Diameter Angle Drills

Designed for production drilling, countersinking, etc., in close quarters, a new line of "junior" size angle drilling heads is announced by Wyzenbeek & Staff, Inc., Chicago, Ill., mechanical engineers of WYCO flexible shafts and power tools.



### WYCO Line of Small Angle Heads

These new Wyco Angle Heads are used on a flexible shaft extension or a portable electric drill. They come with 90-, 45-, 30-degree or universal heads, with overall diameters of 1/2-inch or 3/4-inch, and are widely used in the manufacture of aircraft. They have been designed and are built for heavy duty operation.



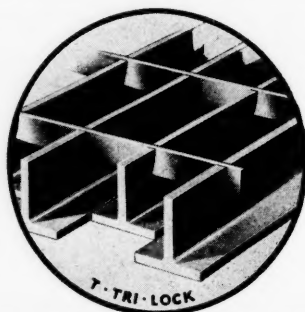
## Specify TRI-LOK

**OPEN STEEL FLOORING  
CONCRETE ARMORING  
SAFETY STEPS  
T. TRI-LOK**

Full descriptive catalog of Tri-lok Grating, Safety Treads and other products on request.



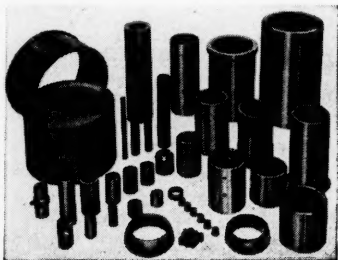
**DRAVO CORPORATION**  
300 PENN AVENUE, PITTSBURGH, PA.  
REPRESENTATIVES IN PRINCIPAL CITIES



MANUFACTURERS RECORD FOR

### Moulded Fabric Bearings

Shortage of critical bearing metals is being overcome, it is declared, by the use of Oil-Lubricated Non-Metallic Moulded Bearings, developed by Gatke Corporation, Chicago, Ill. Known as Lubritex Bearings, they are made of various ma-

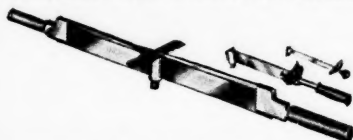


Gatke LUBRITEX Bearings

terial combinations developed especially to meet all kinds of service conditions using grease or oil lubrication. They are said to stand up under impact loads and will give long life and lower friction and will not score journals, even if lubrication fails for limited periods.

### Complete Line of Torque Measuring Wrenches

A line of torque measuring wrenches, ranging from small instrument building wrenches of a few inch pound capacity to two handled torque wrenches of 7200 inch

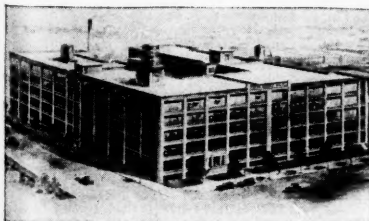


Sturtevant Torque Measuring Wrenches

pound capacity, is announced by P. A. Sturtevant Company, Addison, Ill. Of the flat tapered beam type with fixed end and top scales, they are said to retain their accuracy permanently.

### Steel Heddle Manufacturing Company Expands

The Steel Heddle Manufacturing Company, Philadelphia, Pa., well known manufacturers of Loom Harness Equipment, have purchased the business of J. F. Johnson & Co., Philadelphia, who, for



Large Steel Heddle Building in Philadelphia


the past thirty-two years, have manufactured precision tools, ordnance gauges and special machinery. Equipment and employees will use the Steel Heddle building at 2100 West Allegheny Ave., Philadelphia.

# AVOID This Costly Valve Leakage

# This Costly Leak

AREA OF LEAK		AIR		STEAM		WATER	
Diameter Inches	Number of cubic feet per month at 75 lb. pressure	Total cost of waste per month 11c per 1000 cubic feet	Pounds wasted per month at 160 lb. pressure	Total cost of waste per month 65c per 1000 lb.	Gallons wasted per month at 60 lb. pressure	Total cost of waste per month 16c per 1000 gallons	
1/2"	13,468,000	\$1,481.44	1,219,280	\$792.53	1,524,100	\$243.86	
3/8"	7,558,500	831.44	684,290	444.79	855,360	136.86	
1/4"	3,366,990	370.37	304,820	198.13	381,020	60.96	
1/8"	824,570	90.70	74,650	48.52	93,310	14.93	
1/16"	213,000	23.43	19,280	12.53	24,110	3.80	
1/32"	52,910	5.82	4,790	3.11	5,990	.96	

Enlarged copies of this



Enlarged copies of this chart available on request; also Lunkenheimer Catalog 78.



Valves aren't so easy to replace these days . . . practically all materials going into their manufacture are on the critical list. This means that it is up to every valve user to take the best care of what he has to insure the longest possible service life.

Leaky valves are saboteurs of your production schedules . . . obstructing your best efforts and increasing your costs. The chart illustrated above gives you an idea of what valve leakage costs you.

Fortunately, valves respond to good treatment. Careful handling, immediate repair of the slightest leaks, and prompt replacements of worn parts will keep them on the job, ready to meet the demands imposed by industry's unprecedented war effort.

Since virtually all materials used in the manufacture of valves are on the list of critical materials, valve users are urged to furnish the highest possible preference ratings and proper "end use" symbols on their orders. This will be of mutual helpfulness.

ESTABLISHED 1862  
**THE LUNKENHEIMER CO.**  
"QUALITY"  
CINCINNATI, OHIO, U. S. A.  
NEW YORK CHICAGO  
BOSTON PHILADELPHIA  
EXPORT DEPT. 318-322 HUDSON ST., NEW YORK

# LUNKENHEIMER VALVES

28-101 C-62



## Industrial News

### National Exposition of Power and Mechanical Engineering

The Fifteenth National Exposition of Power and Mechanical Engineering will be held November 30, through December 4, at Madison Square Garden, New York. For twenty years this Exposition has been recognized as a national market for the newest products of research and invention in power and mechanical engineering. Exhibitors who have enrolled include manufacturers of practically every kind of equipment used in power plants and in application of power to machinery, as well as water, steam and air to processing equipment. The Exposition is under the management of International Exposition Company, Grand Central Palace, New York. Charles F. Roth is manager.

### Southern Railway Promotions

Southern Railway has appointed L. E. Wetterau, executive general agent, with headquar-

ters in Birmingham. Mr. Wetterau had served as assistant freight traffic manager at Birmingham since 1938. R. D. Tobien, assistant general manager of the Southern's Western Lines, has been made chief engineer and assumed duties in Washington November 1.

### Universal Engineering Company

The Universal Crusher Company of Cedar Rapids, Iowa, changes its name to Universal Engineering Company. Officers and personnel remain the same. The new name will be in keeping with present and future activities which include design, engineering and manufacture of rock and ore crushers, portable crushing plants and road machinery and precision instruments.

### Three Dravo Engineers Win Awards

Three awards went to engineers of the Dravo Corporation, Pittsburgh, last month. The recipients were George F. Wolfe, Chief Plant Engineer, Division of Participation—Weld-

eries, who was awarded \$2,500 for his paper on "Large Sections of Hulls Prefabricated by Welding"; C. Perry Streithof, Structural Division Engineer, Division of Participation—Functional Machinery, who was awarded \$1,700 for his paper, "Revolving Gantry Crane for Shipbuilding," and R. M. Rush, Manager, and H. A. Pietsch, Industrial Machinery Division, Division of Participation—Functional Machinery, were awarded \$250 for a paper on "Design and Development of a Direct Fired Unit Heater for Oil, Gas and Coal Firing." These awards were from The James F. Lincoln Arc Welding Foundation, Cleveland, O.

### New Name for War Workers

The Link-Belt Company, Chicago, Ill., has coined a new word for war workers "Soldiers in Overalls"—"Productioners." It is applied to both men and women in the shops.

### Twin Disc Clutch Company Appoints Jenkins Manager of Hydraulic Division

The Twin Disc Clutch Company, Racine, Wis., announces the appointment of John B. Jenkins as manager of the Hydraulic Division, Rockford, Ill. For the past eight years, Mr. Jenkins has been in charge of the company's factory branches at St. Louis, Tulsa and Dallas.

### Republic Steel Receives Safety Awards

At the National Safety Congress in Chicago, October 27, two first place safety awards in the annual contest conducted by the National Safety Council went to the Warren District of Republic Steel Corporation, Cleveland, Ohio. Republic's Warren steel plant took first place in the large steel mill classification which includes mills working 750,000 or more man hours per month. A total of 25 steel plants was included in this group. Republic's Niles plant finished first in competition with 37 other companies in the medium sized finishing and fabricating mills group. Other Republic units which will receive first place trophies for safety records include: Steel plants, group B, the South Chicago plant; rolling, finishing and fabricating, group B, Steel and Tubes, Brooklyn, N. Y.; rolling, finishing and fabricating, group C, Trusecon Steel Company, Los Angeles; Union Drawn Steel Division, Hamilton, Ontario; Culvert Division, Canton, Ohio.

### Trade Literature

#### CORNELL DOORS—

Catalog—8 pages, illustrating Cornell upward acting doors, in wood and metal, rolling steel grilles, sliding grilles, etc.; information on designs which substitute wood for critical materials.

Cornell Iron Works, Inc., 36th Ave. and 13th St., Long Island City, N. Y.

#### RECORDING STRESS-STRAIN AUTOMATICALLY—

Booklet—"Automatic Stress-Strain Recording," useful to engineering and laboratory staffs; includes references to bulletins issued by Army and Navy, also a summary for testing war material.

The Baldwin Southwark Division of The Baldwin Locomotive Works, Philadelphia, Pa.

#### FAIRBANKS VALVES AND DART UNIONS—

Catalog "42"—Illustrating and describing Valves and Dart Unions, with index covering various types of Bronze Valves, Unions and Fittings.

The Fairbanks Company, 393-399 Lafayette St., New York City.

#### SYNTHETIC RESIN COMPOUNDS TO INSULATE ELECTRIC WIRES AND CABLES—

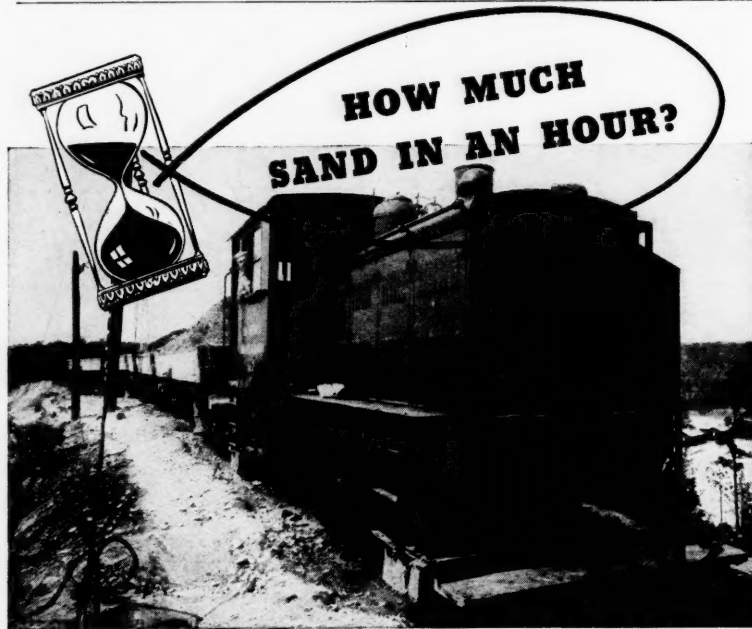
Booklet—"Vinylite Plastics for Wire and Cable Insulation," 12 pages, reviewing important advantages that derive from the use of VINYLITE resin compounds for wire and cable insulation from the standpoints of insulation, service and safety.

Halowax Products Division of Union Carbide and Carbon Corporation, 30 East 42nd St., New York City.

#### "HARDSTEEL" IN DRILL TOOLS—

Booklet—illustrating and describing "Hard-steel" drills, reamers, tool bits and special tools.

Black Drill Co., 5005 Euclid Ave., Cleveland, Ohio.



**MORE WITH** *Plymouth*

Sand runs faster every hour where there's a rugged Plymouth Locomotive on the job to give faster, more dependable, more powerful performance. That's why Plymouth has for years been the choice of Rock Products Producers. That's why it's in the front ranks doing efficient haulage in war production. That's why it will pay you to find out now why and how Plymouth can keep you a step ahead of future competition. Write for facts and figures.

**PLYMOUTH GASOLINE and DIESEL LOCOMOTIVES**  
PLYMOUTH LOCOMOTIVE WORKS

Division of The Fate-Root-Heath Co. PLYMOUTH, OHIO, U. S. A.

# INDUSTRIAL SURVEYS

## *in the Seaboard Southeast*

FOR MANY YEARS we have helped industry by furnishing reliable surveys on industrial locations in the Seaboard Southeast.

MORE RECENTLY we have likewise assisted numerous Government agencies by supplying authentic reports on various parts of our territory.

OUR PRIME OBJECTIVE:—To contribute to our Country's war effort in every possible way until victory is won.

### INDUSTRIAL DEPARTMENT **SEABOARD** AIR LINE RAILWAY

WARREN T. WHITE  
General Industrial Agent  
Norfolk, Va.

# NATURAL GAS

A fuel whose value has been proven by years of use in a most diversified line of industrial applications.

Natural gas has created the possibility of effortless comfort by the facility, and economy with which it fits into the home.

## **SOUTHERN NATURAL GAS COMPANY**

**Watts Building**

**Birmingham, Ala.**

## Post-War Competition

(Continued from page 23)

country will go into a great period of readjustment, rebuilding, and expansion following the war, or into a long period of exhaustion and depression, we cannot tell, but we can be sure that the seeds of the future are now being broadcast.

In no earlier war was the effort so great in the direction of building up production facilities; in no other war was the sheer magnitude of the expansion even thought of. The productive capacity of the steel industry alone has reached a point where the output can easily double the highest annual pre-war consumption. In this war, it would seem, all industrial advances are being made during the years of the armed conflict. It was just the reverse during the previous World War. The advances in industrial productivity of that age came after the declaration of peace.

The war demands have induced an unprecedented economic change in our steel industry. By stimulating the demand for all steel products, it has brought about an expansion in the productive capacity beyond anything we would have otherwise contemplated. Fabricators and other consumers of steel will therefore find themselves pressed to develop post-war markets. These markets will be mostly domestic, for the war has also encouraged the building up of steel industries in countries never before producing steel or which never produced steel in any appreciable quantity. Those previously backward producers will no longer be backward, and consequently we will be driven more and more to increase our own domestic consumption.

Were we to be confronted merely with an expanded capacity we might say this post-war problem could be licked. But we have been educating our consumers to get along without critical materials. We have been trying to educate builders to build structures without steel. Substitutes in our operations may not prove so easy, but the longer this war emergency continues, the greater the need for finding substitutes and desperate people seem to have a genius for getting what they need.

The year 1942 has been a year of experimentation in this matter of substitutes. During such a transition we had reason to expect to see extravagant claims for substitute materials circulated. We have found them at times published in the most conservative journals. For the most part, however, experienced editors have been careful

to sift allegations from facts, and builders have been wont to reserve judgment for demonstrated proof. We will not entirely abandon all that we have discovered to be best from our building experience gained prior to this war and its emergency. We will probably not discard all the short cuts we have found expedient during this crucial day.

The development of aluminum, of magnesium and other light metals, artificially forced by the war demand is working another metamorphosis in another industry.

Three materials, timber, plywood and aluminum, are planning to take some part of the market heretofore dominated by structural steel. As far as timber and plywood are concerned, from the experience we have had so far, we need not worry particularly about that competition. As for structural aluminum, we may be up against something probably a lot more serious, because of the fact that an enormous production of aluminum will be available and a great deal of it will be in parts of the country where power is cheap and is made by the Government, and the Government will want to keep this power going out to those plants, with the result that aluminum, in price, will probably come down to a point where it will be competitive at least in certain parts of the structural field, with structural steel.

I think of one thing in connection with expanding use of structural steel. It is not a material but a process, welding. The welding of structural steel has

developed to an enormous extent and one wonders whether they will ever be able to weld structural aluminum satisfactorily. If so, it will undoubtedly help the use of aluminum to a considerable extent, just as the welding of steel has helped in the design by eliminating material and reducing the total amount required for a structure, and has been of great economic value that way.

Almost every new product that has been brought into the field of industry or into our lives as a useful article has, to some extent, helped the use of every other article and product. I think that is true of everything. In other words, we are in, or have been in, an expanding economy, and really in order to be prosperous it is my idea that we should keep an expanding economy.

The steel industry need have no ap-  
(Continued on page 48)

WHEN YOU TRAVEL to PITTSBURGH  
STOP AT  
HOTEL  
**PITTSBURGH**  
Pittsburgh's  
Newest!  
Popular with War-Busy Officials

Rates	
SINGLES	DOUBLES
\$3.30 to \$4.40	\$5.00 to \$6.50

Radio & Bath in Every Room

A KNOTT HOTEL • JOS. F. DUDDY, Mgr.

**TENTS  
TARPAULINS  
WINDBREAKS  
ROAD MATS**

CONTRACTORS' SUPPLY DEALERS in every state sell the Fulton line. Specify SHUREDRY and FULTEX Tents, Tarpsaulins, and Windbreaks — anything made of canvas. Also Fulco Road Mats and Burlap. If your dealer cannot supply you, ask our nearest plant for catalog

*write for Prices*

**Fulton Bag & Cotton Mills**  
Manufacturers since 1870  
Atlanta St. Louis Dallas Minneapolis  
New York New Orleans Kansas City, Kan.



While cosmopolitan in its general appeal, and modern up to this moment in its equipment, there is a peculiar flavor of The Old South here which Southerners are quick to note and appreciate. They feel at home and come back to us again and again.

Rates \$3.00 per day and up. Every room with bath or shower.  
Centrally located.

**The Southern Hotel**  
BALTIMORE

*We have helped*

many businesses that have brought us their financial problems.

Correspondence invited.

**BALTIMORE COMMERCIAL BANK**

GWYNN CROWTHER, President  
BALTIMORE, MARYLAND

Member Federal Reserve System  
Member Federal Deposit Insurance Corporation



# The Arundel Corporation

## BALTIMORE, MD.

### Dredging—Construction—Engineering

Distributors of Sand-Gravel-Stone and Commercial Slag

#### A COMPLETE ORGANIZATION

Our complete organization with years of experience in successfully executing large construction contracts of various kinds is prepared to undertake the construction of earth, masonry and concrete dams, drydocks, dredging of all kinds, river and harbor improvements, deepening channels, hydraulic filling and rock work, tunnels, railroad construction, sewers and waterways.

#### PERSONNEL:

RICHARD A. FROHLINGER, President  
JOSEPH G. KUHN, Executive Vice-President  
JOSEPH N. SEIFERT, Secretary & Treasurer  
T. K. SHAUGHNESSY, Assistant Treasurer  
E. L. WADE, Assistant Secretary  
C. WARREN BLACK, Vice-President in Charge of Engineering and Construction

GEORGE H. BACOT, Vice-President in Charge of Materials' Production  
JOHN A. REILLY, Vice-President in Charge of New York & New England Areas  
L. EARL DIXON, Vice-President in Charge of West Coast Operations

MAIN OFFICE: Arundel Building, Pier 2, Pratt Street, BALTIMORE, MD.

Branches: BROOKLYN, N. Y.—MIAMI, FLA.

#### POWER PLANTS---WATER WORKS

Contractors

**BURFORD, HALL & SMITH**  
140 Edgewood Ave., N. E.  
Atlanta, Georgia

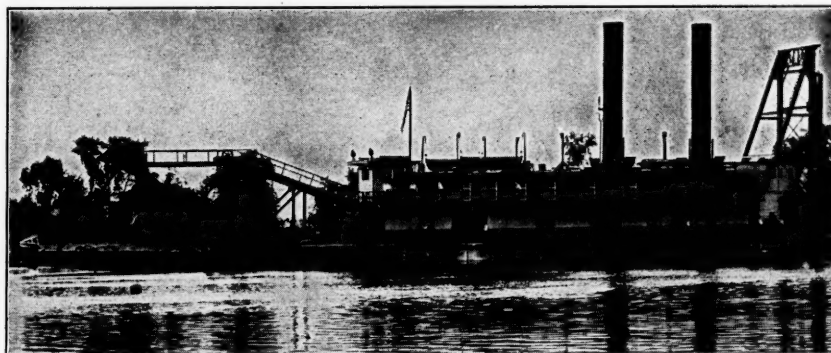
#### SAND—GRAVEL—BRICK FILTER GRAVEL

Washed Sand and Gravel for Concrete  
Roads and Buildings  
Filter Gravel, all sizes—Building Bricks

**FRIEND & CO., INC.** River St., Petersburg, Va.

## DREDGING

FILLING, LAND RECLAMATION, CANALS, PORT WORKS  
RIVER AND HARBOR IMPROVEMENTS—DEEP WATERWAYS AND SHIP CHANNELS



We are especially equipped to execute all kinds of dredging,  
reclamation and port works in Southern waters.  
Correspondence invited from corporate and private interests everywhere.

*Contractors to the Federal Government*

**ATLANTIC GULF AND PACIFIC CO.**  
NEW YORK: 15 Park Row  
HOUSTON, TEXAS: Scanlan Building

## Post-War Competition

(Continued from page 46)

prehension on the score of economy, because our experience in steel has been just the reverse. There were periods when we bought steel cheaper than we are getting it today but, on the whole, steel is replacing wood not only because of the price but because we can get the steel in normal times and fundamentally, the lumber, like the White Pine from Michigan and Wisconsin, is rapidly disappearing.

This little spurt in the wood market will aid the steel market instead of hindering it. At the present time the Jefferson Machine Works, across the river from Louisville, has been asked to curtail the use of steel in old construction, as has been the case in the rest of the country, and they are now building some large crane runways of which the supporting beams are being made of wood instead of steel. They are so huge, and connections to be made on them are so difficult, that I do not believe we have anything in the world to worry about when it comes to that kind of construction.

In the case of structural aluminum, I read that there would be as much power used in producing aluminum by the end of 1943 as the whole country used prior to 1940, and it seems to me that the Government is not going to allow the enormous water power plants to close down after operating at high percentages furnishing power for production of war materials during the war. The Grand Coulee Dam will produce about two million horse power in addition to irrigating 1,250,000 acres. Chiefly, power from projects of this kind will help make cheap aluminum.

Some of the mines have replaced a steel skip with an aluminum skip and by the reduction in weight of a couple of tons, they have increased the capacity of that skip of pay load by just the amount of weight that they have saved. When it comes to steel competing with a condition of that kind, I just do not believe it can be done. In other words, there are places where it is economical to use aluminum even at the old prices.

The same thing might be said, to a lesser degree, of its application to electrical traveling cranes, where the weight of the crane influences the weight of the girders and the columns and the whole supporting structure, and if that structure is very long there is a considerable saving in the weight of steel involved.

Our first and foremost consideration,

however, is to win the war. Next in importance are the foundations which may be laid today for the crucial period when peace is won. That peace cannot be made secure by waving a magic wand or by mere wishful thinking. We must be prepared, with the least possible interference with the prosecution of the war, to insure for returning service men and emergency factory workers opportunities for a livelihood that will in some measure justify the sacrifices they will have made.

## Camouflaging Industrial Plants

(Continued from page 29)

It goes without saying that while the subject of camouflage, except for general statements as to technique, must be surrounded with secrecy, there are many plants throughout the country which are now either protected by camouflages or in the process of being so protected. This is one of the most important but least publicized parts of the war effort, and is being done under the direct supervision of the Corps of Engineers, United States Army.

Either government-owned plants or those designated as vital to the war effort by the War Department, the Provost Marshal, the Bureau of Internal Security, and certain other agencies are eligible to receive camouflaging. When a plant is chosen as needing protection, it is referred to the nearest District Army Engineer, of which there are about fifty in this country. These men, trained at Fort Belvoir, Virginia, act in a supervisory capacity, with the actual work being let on contract to private firms. This organization of District Engineers is the group that was in charge of such peacetime measures as flood control.

All plants not on the War Department list are the responsibility of the Office of Civilian Defense, but in such cases, the procedure is far different. Due to various shortages of material, large-scale camouflaging can be carried out only in the most important instances; and the OCD can rarely recommend measures which do not dovetail with ordinary plant maintenance. For example, it will issue instructions as to how to carry out maintenance painting with colors which correspond to the surroundings.

All inquiries regarding camouflaging should be addressed to the nearest Army District Engineer, whose location

may be obtained from the War Department.

While specific references are out of the question, the Camouflage Division of the Engineering Board at Fort Belvoir has, through its spokesman, Captain Ludgate, stated that the work has been "quite successful, so far, when competent people were available to do the work." It was emphasized, however, that despite the remarkable strides that have been made in a short time, there remains a great deal to be learned and worked out regarding all branches of camouflage.

## What About Tin?

(Continued from page 22)

gram per year by 1943 is thus about 10,000 tons.

An interesting problem develops in connection with the fourth step, which may alter the program somewhat. The primary objective is to save tin. Tin is needed for coating the steel, and for solder to seal the joints. A balance of these two needs must be achieved to get maximum savings. In the all-bonderized can, a tin-lead solder must be used, whereas in a combination electrolytic-plate-bonderized can, silver-lead solder can be used. The saving of tin in solder in the latter case may easily amount to more than the saving of tin from decreased use of electrolytic plate.

Production of electrolytic tin plate involves deep-seated changes in tin plate production, and it cannot be accomplished over night. Entire new plants, costing millions of dollars, must be built. The plating vats of such plants are as deep as a two story house. Such construction is at the expense of critical materials of the most urgent nature required for other vital war construction, and explains why unlimited new electrolytic plant construction cannot be undertaken.

Some estimates place the expenditures required at a total of over 75 million dollars for new electrolytic tin plate plants.

The present construction program, now well under way, will provide enough electrolytic tin plate capacity to permit the savings outlined above by 1943. Twenty-seven electrolytic tin units are currently under construction and 18 bonderizing plants. Some are in the same plants as formed tin dip units. Unfortunately, conversion of tin dip plants to electrolysis is not possible.

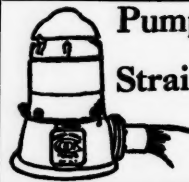
Another obstacle, and one which is not

(Continued on page 50)

## GALVANIZING

Have it done by Philadelphia's OLDEST,  
the Country's LARGEST  
—HOT DIP JOB GALVANIZER—

Joseph P. Cattie & Bros., Inc.  
Geul & Letterly Sts., Philadelphia, Pa.  
GALVANIZED PRODUCTS FURNISHED

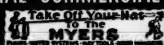


Pumps— Deep-Well Plunger and  
Turbine  
Strainers— and other well supplies

WATER PRESSURE SYSTEMS  
A. D. COOK, Inc.  
Lawrenceburg, Indiana

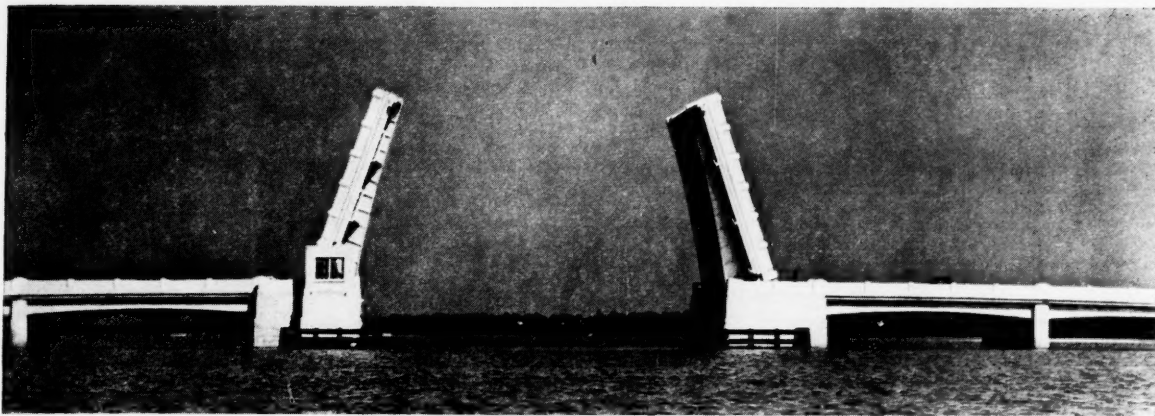
Hand and Windmill Well Pumps  
Tank Pumps, Cylinders and Accessories  
Hand and Power Sprayers,  
Spray Pumps Nozzles and Fittings

MYERS PUMPS  
AGRICULTURAL · COMMERCIAL · INDUSTRIAL



The F. E. Myers & Bro. Co.  
ASHLAND, OHIO, U. S. A.

Deep Well and Shallow Well  
Plunger Type and Ejecto Type Pumps  
and Water Systems  
Pump Jacks and Centrifugal Pumps



## Electric Arc Welded Double Leaf Bascule Bridge

*Central Avenue between St. Petersburg and Treasure Island Beach, Florida*

**BETTER CONSTRUCTION AT LOWER COST**

**THE AETNA STEEL CONSTRUCTION COMPANY**

JACKSONVILLE, FLORIDA

### **Bristol Steel & Iron Works, Inc.** **STRUCTURAL STEEL**

*For Buildings, Bridges and All Industrial Purposes*  
**BRISTOL, VIRGINIA-TENNESSEE**

*District Sales Offices:*  
431 Third Nat'l Bank Bldg., NASHVILLE, TENN.      501 Public Service Bldg., ASHEVILLE, N. C.

### **STRUCTURAL** *for* **B**UILDINGS and BRIDGES

Capacity 1000 Tons per Month. 3000 Tons in Stock

**Carolina Steel and Iron Company**

*The Largest Steel Fabricators in the Carolinas*  
Greensboro      North Carolina  
S. C. Rep. Edward McCrady, 307 Allen Bldg., Greenville, S. C.

### **GLAMORGAN** PIPE & FOUNDRY CO. **LYNCHBURG, VA.**

### **CONVERSE BRIDGE & STEEL CO.**

*Chattanooga, Tennessee*

*Structural Steel for all Industrial Structures,  
Buildings and Bridges*

**LARGE STOCK FOR IMMEDIATE SHIPMENT**

### **BELMONT IRON WORKS** PHILADELPHIA      NEW YORK      EDDYSTONE

*Southern Sales Offices, Charlotte, N. C.*

**Engineers • Contractors • Exporters**

**STRUCTURAL STEEL  
BUILDINGS AND BRIDGES  
RIVETED-ARC WELDED  
BELMONT INTERLOCKING  
CHANNEL FLOOR**

*Write for Catalogue*

**Main Office—Philadelphia, Pa.  
New York Office—44 Whitehall St.**

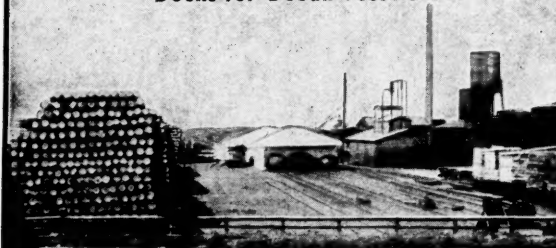
### **CREOSOTED**

**Piling, Poles, Lumber, Cross Arms,  
Cross Ties**

*Also Wolmanized Lumber*

*Decay and Termite Proof—Can Be Painted*

**Docks for Ocean Vessels**



**American Creosote Works, Inc.**  
New Orleans, La.

**Atlantic Creosoting Co., Inc.**  
Norfolk, Savannah, New York

*Plants at: New Orleans; Winnfield, La.; Louisville, Miss.;  
Savannah, Ga.; Jackson, Tenn., and Norfolk, Va.*



## What About Tin?

(Continued from page 48)

yet solved completely, is the need to heat-treat the electrolytic plate after plating to develop a metallurgical bond—really an alloying of the tin and steel—between the plate and the tin coating. This is necessary to permit efficient soldering of the cans, and to provide a surface which will take can enamels satisfactorily. Experiments are now being conducted on this phase of the problems.

The broad tin conservation program includes substitution of other materials for tin wherever possible. Inasmuch as some products must be packed in the heavy hot dipped tin plate cans (1.5 pounds of tin per base box), efforts are now being made to pack as much of this type of product in glass and other non-tin containers as possible.

Certain large canning plants are expected to install one or more production lines for use of glass containers. This can be done adequately only in the large plants, where one of perhaps 25 lines will be so converted. Container filling lines are expensive in critical materials, skilled labor and machine facilities, so they cannot be built except where marked tin savings will be accomplished. It is obvious that substitution of glass for tin in such a case would save much more tin than would substitution of glass for .5 pound electrolytic tin plate. The saving in tin would be three times as great.

The great unknown in the tin conversion program at present is scientific knowledge of what products can be packed successfully in what kinds of

containers. It is not known exactly whether electrolytic tin plate or bonderized steel cans will preserve some foods.

The only way to attack this problem is to pack the product in the suggested cans, store it for six months, and see what has happened. This research will take some time, and it is not expected that reasonably full information can be available before the 1943 season.

Advice from the WPB Iron and Steel Branch indicates that all these factors will come out about even—in time for the 1943 pack of goods. The electrolytic tin plate plants will be completed by that time, and the research on container suitability will be fairly well along, so that the 1943 food pack will take full advantage of the conservation now planned. Thus 10,000 tons of critically needed tin will be saved in that year. This saving amounts to over 10 per cent of a peace-time year's total consumption, and in 1943 will run close to 25 per cent of the year's total demands.

The appropriate agencies in both Great Britain and the United States were asked to extend available capacity for detinning and to take every other means for collecting and reclaiming the maximum quantities of scrap to supplement available quantities of ore.

This coordinated campaign, extending from the kitchens of housewives on United States main Streets and English villages across the seas and around the world to mines and smelters in distant places, is now in high gear. Upon its success the United Nations depend for tin enough to make the weapons that will bring victory.

## New Priorities Put in Effect

(Continued from page 35)

Amend. #1 no longer excepts holders of A-1-j ratings from restriction on use and delivery.

**Exports Under License**—M-148 (as amended) Suppl. #2 assigns an AA-2X rating to every purchase order which relates to any critical material listed in Exhibit A and calls for delivery to the holder of any export license covering such material issued to Oct. 1, 1942 on which a delivery date is specified.

**Farm Machinery and Equipment**—L-26 (as amended), L-26-a (as amended), and L-26-d are revoked, effective October 19, 1942. L-170 restricts manufacture and assembly, restricts sales and inventories, establishes standardization, simplification, substitution and conservation of critical materials, and prohibits use of iron and steel in certain specified items.

**Fats and Oils**—M-71 (as amended) Amend. #1 amends and clarifies terms and permissible uses.

**Flashlight Cases and Batteries**—L-71 (amended) restricts use of scarce material; restricts production of radio batteries, flashlights, and lanterns; restricts transfer of flashlights, lanterns and other portable lights to orders with rating A-10 or higher.

**Fluid Milk Shipping Containers**—M-200 restricts manufacture by specifications and content; restricts use of steel.

**Fluorescent Lighting Fixtures**—L-78 (as amended) curtails manufacture including that of reflectors and restricts sale and delivery, and extends order

(Continued on page 52)



**BEFORE                      AFTER**

**FIRST SQUADRON ARMORY, PHILADELPHIA, PENNA.**  
6,000 SQ. FT. WHITE CORRUGATED WIRE GLASS SKYLIGHT

**SPECIFY**  
**ORIGINAL SOLID CORRUGATED**  
**WIRE GLASS SKYLIGHTS**

**PENNSYLVANIA WIRE GLASS CO.**  
1612 MARKET STREET  
PHILADELPHIA, PENNSYLVANIA

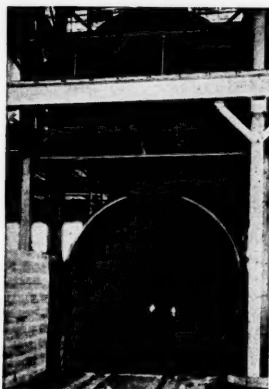
*Have you tried*  
**LYON, CONKLIN**  
*for those*  
**BUILDING SUPPLIES?**



**S**heet metals, accessories and building supplies of all kinds are mighty scarce nowadays, but it stands to reason that you'll have a better chance at Lyon, Conklin & Company, Inc. This well-established company has weathered every war, business boom and business depression that the country has endured throughout the past 82 years . . . and has been known for decades as a dependable source of supply to countless building contractors and industrial plants of this area. If anyone can supply you, Lyon, Conklin & Co., Inc. should! Call SOuth 2000.

**Lyon, Conklin & Co. Inc.**  
ESTABLISHED 1909  
BALTIMORE, MD.

# Lancaster TANKS



15'3" O.D. x 40' Long Vulcanizer

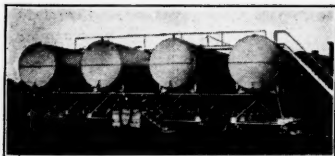
ELEVATED TANKS—PRESSURE TANKS—STEEL STORAGE TANKS—PROCESS TANKS—BUTANE-PROPANE TANKS—STANDPIPES—RETORTS—BINS—EXTRACTORS—BARGES—DREDGE PIPE AND ACCESSORIES—WELDED PIPE—RIVETED PIPE.

General Steel Plate Construction designed for your requirements.

LANCASTER IRON WORKS, INC.  
LANCASTER, PENNSYLVANIA

## SOUTHLAND PRODUCTS

—WELDED OR RIVETED—



We now manufacture and offer to the trade tanks in all sizes for pressure or gravity work. Also other steel equipment of either

WELDED OR RIVETED CONSTRUCTION

This applies to field as well as shop built equipment.

Write us for information and quotations.

CHATTANOOGA BOILER & TANK CO.  
CHATTANOOGA, TENN.

## DAVIS CYPRESS WATER TANKS

For Any and All INDUSTRIES

We serve them all, but lately have built many tanks for the paper and allied industries. Nothing better than a well made cypress tank. Also wooden pipe. Send for catalogue.

G. M. DAVIS & SON  
P. O. Box 5,  
Palatka, Fla.



## CORNELL ROLLING DOORS IN WOOD

WPB order L-142 limiting use of steel doors, places the tested CORNELL WOOD ROLLING DOORS in the forefront to conserve critical war-time materials. Retain the important rolling door economy of floor space, side wall and ceiling space.

Also ask about  
Cornell WOOD  
Vertical-lift doors,  
Canopy and Bi-fold  
doors.

CORNELL IRON WORKS, INC.  
36TH AVE. & 13TH STREET LONG ISLAND CITY, N. Y.

SINCE 1828

Send for complete details, specifications on Cornell Doors and Grilles. Ask for Catalog T.

Section thru wood-slat curtain. Note how the design sheds weather.

Cornell Wood Rolling Doors consist of interlocking wood slats, strung on metal bands placed 2' to 3' apart, and operating in plywood guides, with light formed-plywood hood covering the coil. Weather-protected. Can be motor operated.

## KETTLES

Another COLE Product

Processing kettles of all kinds, built for particular requirements. (For example: a battery of 15 nickel-clad starch kettles was recently made by us for Lanett Mills, of West Point, Ga.) If it's kettles, kiers, vats, or pressure vessels of any kind you need, our Engineering Department will submit designs. Products made from steel, nickel-clad, stainless and alloy steels, aluminum, Monel metal, etc.

Tank Builders for Over 80 Years!

Other Cole products are: Tanks, Towers, Storage Bins, Standpipes, Smokestacks, Flumes, Castings, Nickel-Clad, Stainless Steel and other Alloy Vessels, Air Receivers, Digestors, Boilers, Jig Boxes, Fabricated Steel Work, etc. Write for "Tank Talk" No. 27-D.

R. D. COLE MANUFACTURING CO.  
ESTABLISHED 1854  
NEWNAN GEORGIA

## New Priorities Put in Effect

(Continued from page 50)

through 10-20-42.

**Foot Wear**—M-217 Int. #1 permits shoes with features prohibited at time regulation was issued to be completed if prohibited features were incorporated in shoes before Oct. 31, 1942.

**Furnace Type Carbon Black**—M-244 restricts delivery and use and establishes allocation control but exempts users requiring not in excess of 100 pounds in any one calendar month.

**Gas Masks and Anti-Gas Devices**—L-57 Item #1 changed to include anti-gas devices under terms of original order and prohibits sale or delivery of any material for incorporation in any unapproved product.

**Goatskins Kidskins and Cabrettas**—M-114 (as amended) Amend. #1 adds "Nov.-Dec.-Jan.—210 (total for three months)" to schedule in paragraph (c) (1).

**Gold Mining**—L-208 restricts production and requires closing of "non-essential mines"; order does not apply to lode mines producing 1200 tons or less of commercial ore in 1941 providing rate of production does not exceed 100 tons per month, nor does it apply to placer mines which treated less than 1000 cubic yards in 1941 providing future production does not exceed 100 cubic yards per month.

**Golf Clubs**—L-93 (as amended 10-12-42) prohibits use of iron, steel or other critical materials in production of clubs or parts.

**Hand Service Tools**—E-6 Amend. #2 limits sales and deliveries to orders rated A-9 or higher; further limits types

of alloy steel for manufacture to five series listed in Schedule B. E-6 Amend. #3 revises Exhibit A and prohibits manufacture from any alloy steels except those in the series specified in Exhibit B.

**Hand Tool Simplification**—L-157 Sched. I Amend. #2 permits shovel manufacturers to continue fabrication using inventory of raw and partly processed steel in shapes and sizes not usable under Schedule I. L-157 Sched. #1 Amend. #3 changes effective date for simplification practices to permit producers to use material on hand on August 10 for production of hand shovels, spades, scoops, and telegraph spoons. Thereafter all production must conform to sizes and specifications set forth in Appendix A.

**Heavy Forged Tools**—L-157 Sched. #IV controls and limits production and types permitted. Specifications in Appendix A.

**Incandescent Fluorescent and Other Discharge Lamps**—L-28 (as amended 10-24-42) prohibits during three months October 1 through December 31, 1942 manufacture of bases from a total weight greater than 31¼ per cent of the total weight of such bases produced during 1940; also includes other restrictions and requires elimination of certain metals in manufacture.

**Iridium**—M-49 Amend. #1 changes effective date to December 12, 1941 and to remain in force indefinitely.

**Iron and Steel**—M-21-b Amend. #7 establishes procedure by which a warehouse or dealer may deliver iron or steel products. M-126 (amended) redefines "pencils, automatic" to include "mechanical."

**Iron and Steel Production Maintenance and Repair**—P-68 (amended)

assigns AA-2x rating to deliveries of ferrous and non-ferrous metals on metals list attached to Priorities Regulation No. 11 of fabricated metal parts or lumber; assigns A-1-a rating to all other operating material.

**Iron and Steel Scrap**—M-24 (as amended 10-13-42) clarifies definitions, suspends inventory restrictions and establishes directive for allocation. M-24-c Amend. #1 makes substitutions for chromium and chromium turnings in Classification 16 of Sched. A.

**Kitchen Household and Miscellaneous Articles**—L-30-b prohibits manufacture of all enamelware except those listed in the order or specifically ordered for Army, Navy, Maritime Commission or War Shipping Administration; use form PD-556 and 500. L-30-c prohibits manufacture of cast iron ware except those specifically listed and then only in the permitted sizes.

**Lead and Tin Scrap**—M-72-a (as amended 10-20-42) clarifies definitions and further restricts use; also establishes method of collection, segregation and disposal of used tin cans according to areas listed in Schedules A and B. M-72-a (as amended) Amend. #1 adds Wisconsin to the areas listed in Schedule B.

**Magnesium**—M-2-b is extended in effect until December 31, 1942.

**Manila Fiber and Manila Cordage**—M-36 (as amended 10-23-42) imposes further restrictions on deliveries, processing and sales and clarifies definitions.

**Medical Equipment and Supplies Simplification**—L-214 establishes directive for issuance of schedules simplifying

(Continued on page 54)

**REMEMBER**  
YOUR  
**PATTERN-SHOP**  
**POOR PATTERNS**  
PRODUCE  
**POOR CASTINGS.**  
**RESULTS**  
**EXTRA MACHINE WORK**  
**—STOP—**  
**THAT PROFIT LEAK**  
by  
Installing Modern  
Woodworking Machinery  
BUILT BY  
**J. A. FAY & EGAN CO.**  
Cincinnati, Ohio  
Since 1830

## EPPINGER AND RUSSELL CO.

Wood Preservers Since 1878

All kinds of Structural Timbers and Lumber  
Pressure Treated with Creosote Oil or



80 EIGHTH AVE., NEW YORK, N. Y.

POLES • CROSS ARMS • PILING • TIES  
POSTS, BRIDGE AND DOCK TIMBERS

Treating Plants—JACKSONVILLE, FLA. • LONG ISLAND CITY, N. Y.

## SCREW MACHINE PARTS

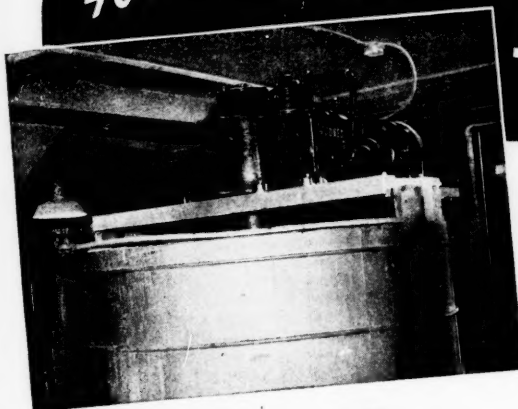
from STEEL • BRASS • STAINLESS-  
STEEL  
*May we solve your  
screw machine problems?*

**SAMUEL J. SHIMER & SONS**  
MILTON, PENNSYLVANIA.

MANUFACTURERS RECORD FOR



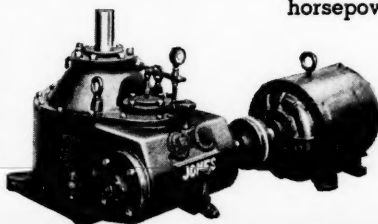
## For driving agitators, mixers and similar equipment— **JONES WORM-HELICAL SPEED REDUCERS**



**H**ERE is a line of machines that fills a long felt need for double reduction units of the fully enclosed type to be used for agitators, mixers, etc. requiring a vertical shaft drive.

Many of these Jones units have established excellent performance records in a wide variety of service. As a result of that experience a complete standard line has been developed covering 15 standard ratios ranging from 40 to 1 to 250 to 1 for all common motor speeds and a wide range of horsepower ratings.

• This Jones Worm-Helical Speed Reducer on a lacquer agitator is typical of the wide range of services for which these drives can be used such as ore roasters, pulp tank mixers, furnaces, bending rolls and similar applications.



The new Jones Bulletin No. 75 covers complete details on these new Worm-Helical Speed Reducers, with rating tables, dimension diagrams, torque charts and other application information. We shall be pleased to send you a copy.



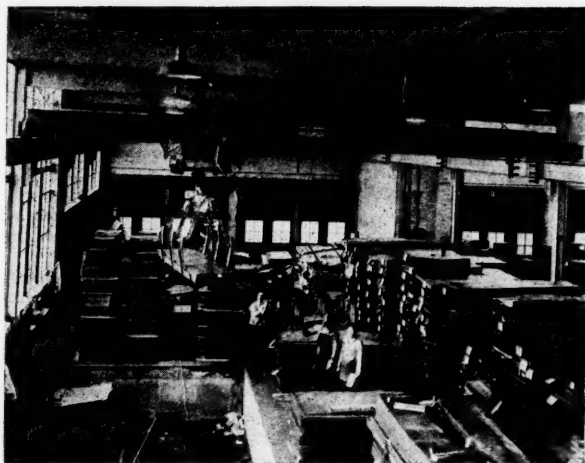
**W. A. JONES FOUNDRY & MACHINE CO.**

4425 Roosevelt Road, Chicago, Illinois

# Jones

HERRINGBONE—WORM—SPUR—GEAR SPEED REDUCERS • PULLEYS  
CUT AND MOLDED TOOTH GEARS • V-BELT SHEAVES • ANTI-FRICTION  
PILLOW BLOCKS • FRICTION CLUTCHES • TRANSMISSION APPLIANCES

## **CONCO OVERHEAD ELECTRIC CRANES**



### **SPEED PRODUCTION**

CONCO Overhead Traveling Cranes and Jib Cranes are speeding production in such important Defense Plants as the Aviation Division of Studebaker Corporation, Ordnance Division of Westinghouse Electric & Mfg. Co., Ordnance Division of E. I. du Pont de Nemours & Co., McDonnell Aircraft Company, American Locomotive Company and many others. There is a size and style of Conco Crane to fit your war production needs, too. Conco Overhead Electric Traveling Cranes have the strength, power and durability to withstand rigorous, continuous use. You will be interested in specifications and quick delivery of a Conco Crane designed to meet your individual requirements. Write us now for a complete proposal.

A 5 ton, 3-motor Conco Overhead Electric Traveling Crane speeds the handling of sheet steel in a war plant. Conco's important High-Hook-Lift, Low-Headroom features, provide for maximum efficient use of space.

Conco Engineering Works manufactures a complete line of hand-powered and electric cranes, hoists and trolleys.

# CONCO

**ENGINEERING WORKS**  
35 GROVE STREET  
MENDOTA, ILLINOIS

NOVEMBER NINETEEN FORTY-TWO

53

## New Priorities Put in Effect

(Continued from page 52)

ing lines of equipment and supplies. L-214 Sched. #1 prohibits manufacture of hospital enameled ware other than that listed and establishes permissible sizes and other limitations under which products can be made.

**Metal-Cutting Band Saw Blades and Hacksaw Blades**—E-7 Amend. #1 permits sale of low alloy steel hack saw blades used in ordinary hand frames without preference rating.

**Metal Plastering Bases and Accessories**—L-59-a prohibits use between Nov. 1 and Nov. 15 of any metal in excess of one-eighth of the quantity permitted between July 1 and Oct. 31, 1942.

**Mines**—P-56 (as amended) Amend. #4 assigns ratings for delivery of materials for maintenance and supplies.

**Mobile Housing**—L-205 prohibits manufacture except to fill specifically authorized orders, and restricts sale and delivery except to the National Housing Agency.

**Motor Trucks, Trailers and Passenger Carriers**—L-1-e permits producers of off-the-highway motor vehicles under terms of this order to schedule their production as if the orders were rated AA-2X regardless of Priorities Reg. #1. P-107 (as amended) is revoked effective October 17, 1942.

**Nickel**—M-6-b (amended) restricts use except when authorized or for implements of war or articles or products for specified government agencies; limits inventories; appends List A of prohibited uses; use form PD-556.

**Oilfield Oil**—M-238 restricts use, processing and delivery except to press,

liquify or refine or where the amount used does not exceed 35 pounds in any one calendar month; use form PD-600.

**Paper and Paperboard**—M-241 restricts inventories and production, with certain exceptions, in any one month to the same as the average amount produced during the six months April 1, 1942 to Sept. 30, 1942.

**Paper Standardization and Simplification**—L-120 Sched. I (as amended and revised 10-29-42) defines terms and lists sizes, weights and types of book paper for use in commercial printing. L-120 Sched. II (as amended and revised 10-29-42) defines terms and lists sizes, weights and types of book paper for use in book publishing. L-120 Sched. III (as amended and revised 10-29-42) defines terms and lists sizes, weights and types of fine writing paper. L-120 Sched. IV (as amended and revised 10-29-42) defines terms and lists sizes, weights and types of tablet paper. L-120 Sched. V (as amended and revised 10-29-42) defines terms and lists sizes, weights and types of envelope paper.

**Para-Phenyl-Phenol Rasins**—M-254 restricts use and delivery and establishes allocation control; use form PD-600.

**Petroleum Coke**—M-212 limits delivery and use with certain specified exceptions or where it is to be incorporated into silicon carbide abrasives.

**Petroleum Material Conservation**—M-68-3 rescinds certain provisions of original order where material is to be used by a California operator engaged in oil production to deepen and recomplete, plug back and recomplete or otherwise "rework" any well in any of the fields specified in Part I through Part

III of Exhibit A. M-68-5 (as amended 10-23-42) clarifies definitions and lifts restrictions of original order where material is to be used to drill or complete any well in certain parts of Illinois, Indiana, or Kentucky.

**Petroleum (Production Transportation, Refining and Marketing)**—P-98-d prohibits use of any preference rating to delivery of materials unless assigned by PD-311 series forms; ratings so made continue in effect until 1-1-43; permits preference rating requests on such forms for fourth quarter material until 11-1-42; use forms PD-311 and 311C.

**Pigs' and Hogs' Bristles**—M-51 (as amended 10-13-42) further restricts use and requires all sales and delivery be made to Defense Supplies Corporation unless otherwise specifically authorized.

**Platinum**—M-162 (as amended 10-31-42) restricts sale, purchase, receipt, delivery and manufacture and prohibits use in any form in jewelry after Jan. 1, 1943; use forms PD-512, 513 and 514.

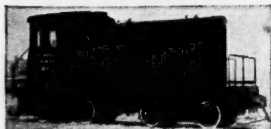
**Polyvinyl Butyral**—M-154-a establishing allocation control was revoked October 12, and superseded by M-10 placing all vinyl polymers under allocation control.

**Pulpwood**—M-251 establishes control in areas of shortage and requires all producers to file monthly reports before the 6th of each month concerning receipts, consumption and inventory at each mill; use form PD-656 or PD-661 for mills located in Oregon or Washington. M-251 Sched. I to Para. (d) establishes area of Washington state in which shortage exists, types of pulpwood involved and sets up allocation control. M-251 Sched. 2 to Para. (d) (Continued on page 56)

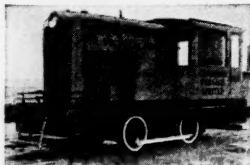
## The Toughness of Commandos

is BUILT into EVERY

### DAVENPORT



Large and Small, Davenports Serve the United Nations.



**Better-Built  
DAVENPORTS  
are AVAILABLE  
in STEAM  
GASOLINE  
DIESEL  
with  
ELECTRIC  
or  
MECHANICAL  
DRIVE**

Ready for ACTION every minute. IN ACTION, somewhere, every minute. Davenport Locomotives are breaking transportation bottlenecks, bringing raw materials into production centers, speeding construction projects, and moving finished war goods out of factories and supply depots on their way to many fronts. Backed by more than forty years of fine locomotive building, today's rugged, stamina-built Davenports measure up to the highest traditions of American effectiveness.

*We Invite Your Inquiries.*

EXPORT OFFICE **BROWN & SITES** 50 Church St., N.Y. Cable Add. "Brosites"

## DAVENPORT LOCOMOTIVE WORKS

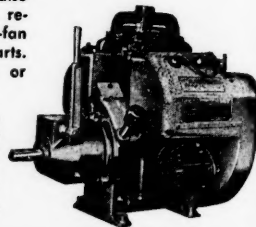
A DIVISION OF DAVENPORT BESLER CORPORATION, DAVENPORT, IOWA

## Saved FOR WAR PRODUCTION

In the promotion of today's urgent war effort, manufacturers, sellers, and users of power-operated equipment (within a 1 to 35 hp. range) can effect substantial savings of critical materials, labor, and machine work at the manufacturing source by specifying WISCONSIN AIR-COOLED ENGINE POWER.

These heavy-duty engines require none of the 26 parts illustrated above, which comprise the cooling system of a typical water-cooled engine . . . parts that also require periodical servicing and replacement. One simple flywheel-fan casting replaces all of these parts. And there are no water chores or troubles to worry about.

Wisconsin Heavy-Duty Air-Cooled Engines are made in a complete range of types and sizes, 1 and 4 cyl., 1 to 35 hp. Illustrated is the VE-4 V-type 4-Cyl. Engine.

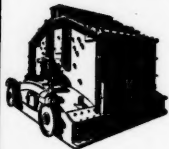


## WISCONSIN MOTOR Corporation

MILWAUKEE, WISCONSIN, U. S. A.  
World's Largest Builders of Heavy-Duty Air-Cooled Engines

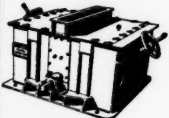
## "PENNSYLVANIA" CRUSHERS

### HAMMERMILLS



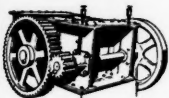
The Central Feed REVERSIBLE is the most outstanding advance in Hammermill design in 20 years. REVERSIBILITY is an exclusive "Pennsylvania" feature. For Limestones, Cement Rocks, Gypsums and wide variety of Chemicals and Industrial Minerals. Automatic hammer turning. Adjustable Cages. . . . . Tramp Iron protection. Steelbuilt. Patented.

### "IMPACTORS"



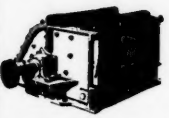
An advanced, new type that reduces by direct impact. For high Silicas, Clinkers, Slags, Chrome and Manganese Ores, Furnace Refractories, etc. Makes "cubing" particle shape, not "slivery". Several sizes. Patented.

### SINGLE ROLLS



An advanced design, specialized for Coal Preparation in Mines, Cleaning Plants, Gas Works and Power Plants. Sizes for Chemicals and Industrial Minerals. Automatic Tramp Iron Protection, quick adjustability from 1/2" to 8" sizing. Powerful Steelbuilt construction. Patented.

### "GRANULATORS"



Granulate materials of medium hardness. . . . . Bituminous coal, . . . . . Gypsum Rock, etc., to produce sizes 1/4" to 2", with minimum fines and oversize. Operation practically dustless. Steelbuilt. Patented.

### BRADFORD BREAKERS



Reduce R.O.M. for Stoker or Pulverizer feed with absolutely no oversize and low "overgrinding." Crush by gravity impact. Automatically eject, without damage, tramp iron, mine debris and hard rock. Low H.P. . . . . slow speed. . . . . long life. Low up-keep. . . . . rugged. . . . . thoroughly dependable. 25 to 500 T.P.H. Steelbuilt. Patented.

Bulletins are available to interested parties.

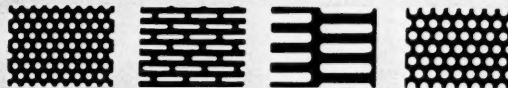
**PENNSYLVANIA CRUSHER CO.**  
1705 Liberty Trust Bldg., Philadelphia, Pa.

Offices in Principal Cities

Associated with Fraser & Chalmers Engineering Works, London, England.

## SCREENS of Perforated Metal

ANY METAL • ANY PERFORATION



**The Harrington & King**  
PERFORATING CO.

5631 Fillmore St., Chicago—114 Liberty St., N. Y.

## HENDRICK PERFORATED METALS

Screens and grilles  
in all commercially rolled metals,  
all standard and special designs.

Write for literature

**HENDRICK MANUFACTURING CO.**

44 Dundaff Street, Carbondale, Pa.

Manufacturers of Milco Open Steel Flooring, Milco  
Shur-Site Treads and Milco Armorgrids.

## CRUSHED STONE

Only highest grades of crushed  
**LIMESTONE AND GRANITE**

Meeting all specifications

CAPACITY—8000 tons daily

Blue Ridge, Va.      Pembroke, Va.      Pounding Mill, Va.  
Boxley, Greensville County, Va.

**W. W. BOXLEY & COMPANY**

Boxley Building, ROANOKE, VA.

## PERFORATED METALS

For every purpose, Industrial and Ornamental

Steel, Stainless Steel, Monel Metal, Brass,  
Copper, Bronze, Aluminum, Zinc, Lead, Tin  
Plate and all other metals or materials  
perforated as required, and for all kinds  
of screens. Send for new Catalog.

**CHARLES MUNDT & SONS**

490 Johnston Ave.,

JERSEY CITY, N. J.

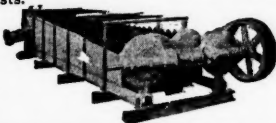
## McLANAHAN EQUIPMENT

### CRUSHERS

Single and double roll and jaw crushers,  
hammer mills, super dry pans—  
steel log washers and scrubbers, sand  
drags, revolving and vibrating screens,  
elevators, conveyors, dryers, jigs,  
hoists.

### SCREENS

Complete portable, semi-  
portable and stationary  
crushing, screening and  
washing plants for different  
capacities of any materials.



**McLanahan & Stone Corp.**

Established 1835  
HOLLIDAYSBURG,  
PENNSYLVANIA

## ERDLE

## SHEET METALS

SIXTY YEARS' experience in  
Metal Perforating is your assurance of  
a satisfactory job.

Made to your specifications  
and shipped promptly.

Metal Sample Plate on Request.

**ERDLE PERFORATING COMPANY,**

171 York Street,

Rochester, N. Y.



## New Priorities Put in Effect

(Continued from page 54)

establishes area of Oregon in which shortage exists, types of pulpwood involved and sets up allocation control.

**Rapeseed Oil**—M-77 (as amended 10-6-42) restricts use, processing and delivery except to press, alkali refine or denature or where the amount used does not exceed 35 pounds in any one calendar month; use form PD-600.

**Rattan**—M-248 restricts sale and delivery of any weaving rattan 6 mm. and over in diameter, or hard and semi-hard rattan 9 mm. and over in diameter, or any slab rattan 6 mm. or over except upon special order; also imposes restrictions on processing and consumption; use form PD-692.

**Rhodium**—M-95 Amend. #2 changes effectiveness of order to date from March 11, 1942 and continue in force indefinitely.

**Roll Toilet Tissue** — L-120 Sched. #VI establishes standardization and simplification.

**Scales Balances and Weights**—L-190 classifies output and restricts production of parts and assembly.

**Silica Gel** — M-219 Amend. #1 exempts deliveries in any one calendar month not in excess of 125 pounds from requirements of specific authorization.

**Silk Hosiery (used)** — M-182 (as amended 10-12-42) requires segregation from other rags and materials and all sales and deliveries must be made according to this order.

**Softwood Lumber** — M-208 Amend. #2 lifts AAA rated orders from Class I; allows concentration yards to make sales between themselves; box factories

relieved from restrictions of order; prohibits use of ratings assigned if a project has other assigned rating; use form PD-423. M-203 Amend. #3 removes "A-1-a" in various paragraphs and substitutes "AA-5." M-208 Amend. #4 clarifies "producer" as meaning any plant which processes by sawing, edging, planing or other method 25% or more of the total value of logs and lumber purchased or received by it, and which sells as lumber the products of such processing. M-208 Amend. #5 defines and clarifies meaning of "softwood lumber."

**Sole Leather**—M-80-c directs tanners to set aside 15% of October production of Manufacturers bends. M-80-d directs tanners to set aside 15% of November production of manufacturers bends.

**Sperm Oil**—M-40, (as amended 10-27-42) restricts use, processing and delivery to persons specifically authorized after filing form PD-481 but exempts users of not more than 100 pounds in any one calendar month.

**Steatite Tale**—M-239 prohibits use, sale and delivery except for (1) insulators in communications, radio, radar, and underwater sound instruments; (2) spark plugs for certain war agencies, or for delivery in accordance with L-158; (3) filtering of foods, flavoring extracts, and medicines; (4) medicines and health supplies, but not including talcum powder or cosmetics; use forms PD-678 and 679.

**Steel**—M-148 (as amended) Suppl. #1 establishes export quota system for products listed in Sched. A under licenses issued by Board of Economic Warfare.

**Steel Products** — L-211 establishes

procedure for the issuance of schedules as to sizes, shapes, specifications, or other classifications. L-211 Sched. #1 establishes List 1 and List 2 of specifications generally permissible and permissible for government orders only on concrete reinforced bars and spirals. L-211 Sched. #2 establishes List 1 and List 2 for the production of small wheels and tires.

**Steel Shipping Drums** — L-197 Amend. #2 clarifies terms and further restricts sale and use.

**Strategic Materials Imports** — M-63 (as amended) Amend. #7 makes changes in Lists I, II, and III.

**Sugar**—M-98 (as amended 10-30-42) defines terms and restricts refiners and manufacturers.

**Sugar (Direct Consumption)**—M-55 and amendments, interpretations and supplementary orders through M-55-h are revoked effective October 17, 1942.

**Sulfamic Acid and Derivatives**—M-242 establishes complete allocation control; use forms PD-600 and 601.

**Thermoplastics** — M-10 (as amended 10-10-42) includes all but vinyl polymers under provisions of allocation control. M-154 (amended) postpones effective date for scheduling provisions of order to 11-1-42. M-154 Amend. #4 changes "1st of November, 1942" in opening paragraph of original order to "1st of January, 1943."

**Tin**—M-43 (as amended) Amend. #1 further restricts sale and delivery of certain tin products and lists exceptions.

**Tin, Tin Coated and Alloy Collapsible Tubes** — M-115 (amended) restricts manufacture, sale and delivery of blanks and tubes, and restricts use of tubes for

(Continued on page 59)



*A stitch in time!*



Typical repairs and patches made with Flexco HD Rip Plates


**THOUSANDS** of men in industrial plants, mines and mills all over the country are doing just what this man is doing. They are cutting costs by repairing conveyor belts with Flexco HD Rip Plates.

**WRITE TODAY FOR BULLETIN F-100** that shows how easy it is to repair rips, to strengthen soft spots and to put in patches by using Flexco HD rip plates. The bulletin also shows how to make tight butt joints in both conveyor and elevator belts with Flexco HD Belt Fasteners. These fasteners are made in six sizes. Furnished in special analysis steel for general use and in various alloys to meet special conditions.

**FLEXIBLE STEEL LACING CO.**  
4690 Lexington St., Chicago, Ill.



Flexco HD  
Rip Plate



Flexco HD  
Belt Fastener

**FLEXCO HD BELT FASTENERS**  
Sold by supply houses everywhere

# GARY

## GRATING & TREADS

---

## GARY-WELDED

## GARY-RIVETED

## GARY-STAIR-TREADS

## GARY-IRVING-DECKING

SEND FOR FREE SAMPLE &

— CATALOG —

## STANDARD STEEL SPRING CO.

2700 EAST FIFTH AVENUE  
GARY, INDIANA

1905 **Strand** 1942  
FLEXIBLE SHAFTS  
**FLEXIBLE SHAFTS AND MACHINES**  
MANY TYPES AND SIZES

HORIZONTAL



**ROTARY  
FILES**

**ROTARY  
CUTTERS**

Attachments  
for

Hundreds  
of  
Operations

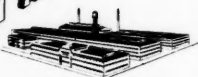
VERTICAL



SEND FOR CATALOGUE.

**N. A. STRAND & CO.**  
CHICAGO  
5001-5009 NO. WOLCOTT AVE.

**RIGHT DOWN OUR  
PRODUCTION ALLEY**



*We want  
WAR SUB-CONTRACT work!*

We need work — you need help — let's get together.

Stewart has enormous manufacturing and ample shipping facilities for production runs of units or parts of units fabricated from angles, flats, tees, rounds, squares, sheets, strips, and plates involving the use of equipment listed at the right.

Stewart offers competent engineering service; on time deliveries; best workmanship and the highest financial rating obtainable. When writing, please send specifications and complete information.

**PRODUCTION  
FACILITIES**

Punch Presses • Shears  
Power Brakes • Spot,  
Arc and Gas Welders  
Drill Presses • Bull  
Dozer Forming Equip-  
ment • Automatic  
Saws • Heat Treating  
Furnaces • Finishing  
Equipment • Tool  
Room Equipment.

**Stewart**  
FABRICATORS OF  
**IRON • STEEL • WIRE**  
ANGLES • FLATS • ROUNDS • SQUARES • TEES • STRIPS • SHEETS • PLATES

**THE STEWART  
IRON WORKS CO. Inc.**  
1963 Stewart Block  
Cincinnati, Ohio

**For WAR EMERGENCIES**



**VALVES  
HYDRANTS**  
and  
**PIPE LINE  
ACCESSORIES**



The high quality and dependability of M & H products play an important part maintaining maximum production of war materials in many manufacturing plants. M & H products are equally important for adequate protection of plants and factories against the increased fire hazard of war emergencies. A reserve supply is good insurance.

M & H GATE VALVES are cast iron body, bronze mounted, with double-disc parallel seat or solid wedge top, non-rising stem or outside screw yoke. They come either with flanged or screwed connections. Valves for fire protection lines are approved by both the Underwriters and the Factory mutuals.

M & H FIRE HYDRANTS are revolving head, dry top, bronze mounted. They also are approved by the Underwriters and Factory Mutuals. Entire main valve assembly is removable through barrel without digging. Special Traffic Model is fitted with breakable bolts and stem coupling, designed to break at ground line under impact. Repairs are made simply by renewing bolts and coupling, without shutting off the water.

**M & H PRODUCTS INCLUDE**

FIRE HYDRANTS	SHEAR GATES
GATE VALVES	MUD VALVES
TAPPING VALVES	VALVE BOXES
WALL CASTINGS	FLAP VALVES
SPECIAL CASTINGS	SLUDGE SHOES
TAPPING SLEEVES	FLANGE AND
CHECK VALVES	FLARE FITTINGS
FLOOR STANDS	FLANGED FITTINGS
EXTENSION STEMS	B & S FITTINGS
	CUTTING-IN TEES

**M & H VALVE  
AND FITTINGS COMPANY**

ANNISTON, ALABAMA



## Great Jumping JEEPS!

### MEET THE ARMY'S MECHANICAL MULE...

Born in the minds of fighting spirited men, the Jeep—our Army's mechanical mule, was made a reality and has now achieved a reputation of out-climbing, out-pulling and out-maneuvering anything of its weight ever put on four wheels. On every war front in the world, the Jeep is now the pride and joy of Brass Hats and Buck Privates alike.

But remember the men who build the Jeeps—those who train to operate and follow them—and the millions of others who are engaged in our war effort. For all, there had to be an abundance of water. It was the Layne Organization, who in the majority of cases, drilled the wells and built the systems that provide water by the millions of gallons. To a well water system, the name Layne is as famed as is the name Jeep to a four wheel vehicle. In record time, Layne built hundreds of well water systems—and thus helped put our Nation on an undelayed war effort program.

Layne's reputation like that of the Jeep has been won on the field of action. Throughout the entire Nation, Layne wells and pumps are doing a magnificent job—providing millions upon millions of gallons of water daily for ordnance plants, munition factories, training camps, air fields, ship yards and all kinds of war material producers. For late bulletins, address,

LAYNE & BOWLER, INC.  
Memphis, Tenn.

**LAYNE  
PUMPS & WELL  
WATER SYSTEMS**

*Affiliated Companies*

Layne-Arkansas Company.....	Stuttgart, Ark.
Layne-Atlantic Company.....	Norfolk, Va.
Layne-Bowler New England Corp.....	Boston, Mass.
Layne-Central Company.....	Memphis, Tenn.
Layne-Northern Company.....	Mishawaka, Ind.
Layne-Louisiana Company.....	Lake Charles, La.
Louisiana Well Company.....	Monroe, La.
Layne-New York Company.....	New York City
Layne-Northwest Company.....	Milwaukee, Wis.
Layne-Ohio Company.....	Columbus, Ohio
Layne-Texas Company.....	Houston, Texas
Layne-Western Company.....	Kansas City, Mo.
Layne-Western Company of Minnesota.....	Minneapolis, Minn.
International Water Supply, Ltd.....	London, Ontario, Can.

**WORLD'S LARGEST WATER PUMP**



## Sub-Contractors Wanted

(Continued from page 34)

### Ref. Chase-51-1

A New Jersey manufacturer requires indefinitely continued subcontracting facilities for MACHINING AVIATION ENGINE STARTER COMPONENTS of approximate dimensions as follows: Bearing Ring, 3 3/4" Dia. x 1/4" Long and Ball Race, 4" D x 3/4" L, both high carbon, high chrome steel tubing; Spline Nut, 2 1/2" D x 1 1/2" L, nickel chrome steel; Intermediate Head, 3 3/4" D x 4 1/2" L; Shaft Screw, 2 1/2" D x 5 3/4" L; Threaded Sleeve, 2" D x 4 3/4" L; Spiral Bevel Gear, 27 teeth 10 pitch, 2.7" PD, splined shank 3/4" D x 2-23/32" L. Latter four items of 5% nickel carburizing steel. Subcontractor to furnish own material. AA-1 priority. Tolerances—medium and close precision. Quantities varying up to 1000 per month. Equipment or equivalent required: Turret Lathe; Thread Miller and Grinder; #7 Gleason Spiral Gear Generator; Drill Press and Multi-Spindle Drill; Broach; I.D., O.D., and Surface Grinder; Milling Machine; Lap-per.

### Ref. Chase-22-3

A Connecticut manufacturer requires indefinitely continued subcontracting facilities on AVIATION MOTOR COMPONENTS as follows: Breather Connection Bodies, Supercharger Drain Adapters, Diffuser Support Studs, Valve Rocker Shafts, Exhaust Valve Washers, Main Crank Case Studs, Long Breather Manifold Screw, Long Hex. Head Screw, Fillister Head Screw, Oil Manifold Rocker Screws and Reduction Drive Pinion Shaft, all of SAE 6150 Steel. Push Rod Ball Ends of SAE 3115 Steel and Valve Tappet Rollers of AMS 6440 Steel. Rear Blower Shaft Spacers of SAE 1035 Steel. Oil Temp. Control Valve of AMS 5010 Steel and Spring Retainer Button. Material largely Bar Stock. Tolerances—medium and close precision. Quantities: substantial, all items. Equipment or equivalent required: Screw Machines, Light Milling Machines, Drilling: Thread Rolling; Grinding.

### Ref. Roystuart-50-3

A Government Agency requires a large quantity of HERRINGBONE GEARS for Aviation Engines—two types—O.D. 4 3/4" to 6 1/4", width 2 1/4", 6" pitch. 20° pressure angle, Sykes form. Carbonize and harden. Tolerance close.

### Ref. Roystuart-50-4

A Government Agency requires a large quantity of INTERNAL GEARS for Aviation Engines, 5-13/16" O.D. x 23/32" width. 20° stub tooth, Fellows form. Pitch 3.667. Heat treat.

### Ref. Roystuart-50-5

A Government Agency requires additional facilities for machining two sizes of six throw AVIATION ENGINE CRANK-SHAFTS. Production requirements starting at 31 and 57 units per month, increasing progressively. Equipment required—heavy

duty lathe 24" swing 10' c.c., crankshaft grinder, thread grinder, heavy duty drill press, milling machine, balancing equipment, Heat treating required. Dimensions O.A. lengths 37" and 48", main bearings 2 1/2" and 2 3/4", crank throw 2 1/2" and 2 3/4". All forgings furnished.

### Ref. Keefer-50-1

A Penna. manufacturer is looking for subcontracting facilities for BODY and END CAP on a certain fuze. Body is 2.317" long, and diameter is 1.25". Made from steel—W.D.X.-1112, W.D.X.-1314 or W.D.X.-1315 cold drawn. External and internal threading operations. End Cap is 2.00" long and 1 3/4" in diameter. Made from steel—W.D.X.-1020, 112, 1314, 1315 or 1335 cold drawn. Internal threading operation. Quantity: 50,000 to 100,000 pieces monthly for each part. Prime contractor to furnish materials. Equipment desired: Multi-spindle automatic screw machines.

### Ref. Keefer-50-2

A Penna. manufacturer desires subcontracting facilities for an ADAPTOR. Length — 1/2", diameter 2-15/16". Made from cold rolled or hot rolled steel—W.D. 1115. Internal threading operation. Prime contractor needs 1,000 pieces per day. Equipment desired: Multi-spindle automatic screw machine.

### Ref. Roystuart-58-6

A Government Agency requires 12 sizes of TURNBUCKLE BARRELS. Total requirements 180,298 pieces. Machine Tools required: Automatic and Hand Screw Machines, Spindles from 1/4" to 3/4", and Bench Drill Press. Tolerance .005" threads, NF-3. Material:—Brass, Navy Specification 46-B-26. Overall dimensions .250" to .875" O.D. x 2.25" to 4.25" length. All material to be furnished by contractor.

### Ref. Keefer-26-1

A Penna. manufacturer is looking for subcontracting facilities on BODY FOR THE M 48 FUZE. Material—WDX 1314 Cold Rolled Steel. Tolerances: + — .005. Quantity needed is 25,000 to 50,000 per week. 25% Multi-Spindle Screw Machine is required for this work. Samples are on display at the Exhibit Room.

## New Priorities Put in Effect

(Continued from page 56)

packing; further conserves use of tin.

**Tire Retreading, Recapping and Repair Equipment** — L-61 (as amended 10-10-42) restricts production to orders rated A-9 or higher.

**Toiletries and Cosmetics** — L-171 revoked effective 10-13-42 but does not affect any liability or penalty accrued or incurred under original order.

**Tung Oil**—M-57 (as amended 10-6-42) restricts use, processing and delivery except for refining or when the amount used does not exceed 35 pounds

in any one calendar month; use form PD-600.

**Utilities (Maintenance, Repair and Supplies)**—P-46 (as amended 10-10-42) restricts deliveries, withdrawals and inventories but assigns high ratings to acquire needed material and permits producers and suppliers to extend ratings in accordance with Priorities Reg. #3 (as amended). P-46-a permits service connections to facilities of Army, Navy and Maritime Commission provided total length of main line does not exceed 250 feet and total cost of materials does not exceed \$1,500 for underground, and \$500 in the case of other jobs. P-46-b permits, with certain limitations, connections for operation of gas or electric range in domestic consumer dwelling.

**Vacuum Cleaners (Domestic)** — L-18-c prohibits all manufacturers and dealers from making any transfers until December 31, 1942 except for use by the Armed Forces, Lend Lease or others specifically authorized. Reports must be filed on form PD-655.

**Vinyl Acetate**—M-240 prohibits sale, use and delivery above 25 pounds per month to any one person, and restricts producers or distributors from delivering over 1000 pounds to all users in any one month; use form PD-600.

**Wood Upholstered Furniture** — L-135 Int. #1 clarifies what operations can be included in assembly of final fabrics.

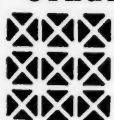
**Wool** — M-73 Amend. #2 releases over 30,000,000 pounds of previously restricted carpet wools for manufacture of floor coverings. M-73 Amend. #2 as amended for the period Aug. 3 to Jan. 31, 1943 restricts use in manufacture of uniforms other than those for delivery to or on account of a federal agency. M-73 (as amended for period Aug. 3, 1942 to Jan. 31, 1943) Amend. #3 provides additional allotment for use in certain knitted wear.

**Wool Clothing for Men and Boys**—M-73-a as amended and revised is revoked effective Oct. 26, 1942.

**X-Ray Equipment** — L-206 restricts manufacture to the permitted number of models of the types listed in Schedule A; restricts sale and delivery to Army, Navy, Maritime Commission, War Shipping Administration or other persons specifically authorized after filing form PD-556.

**Zinc Oxide and Zinc Dust**—M-11-b (amended) prohibits use after 10-10-42 in manufacture of closures for glass containers, which is the only item on new list A-1 of prohibited uses.

## Ornamental and Industrial

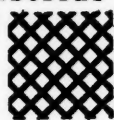


## PERFORATED METALS

We carry a large stock for immediate shipment.

Send for Our Catalogue.

Manhattan Perforated Metal Co., Inc., 43-17 37th St., L. I. City, N. Y.



## FINE GEARS

of all Materials—All Types and Sizes  
Spur Gears—1/4 in. to 30 ft. in diameter  
Bevel Gears—1/4 in. to 13 ft. in diameter  
Spiral Gears—1/4 in. to 10 ft. in diameter  
Worm gears any practical size. Racks curved or straight. Fast Delivery—Fair Prices

THE EARLE GEAR & MACHINE CO.  
4719 Stanton Ave., Philadelphia, Pa.  
149 Broadway, New York City

## EARLE GEARS

## CHRISTMAS SEALS



Protect Your Home from Tuberculosis

search, rehabilitation, and a Negro program. All of this work is made possible through the annual sale of the Christmas Seal.

Let these messengers of protection accompany all holiday mail this year.

## THE Maryland Tuberculosis

Association with 1800 state and local tuberculosis associations throughout the United States and territories is fighting tuberculosis on the "Home Front" through clinics; X-rays,

health education, medical research, rehabilitation, and a Negro program. All of this work is made possible through the annual sale of the Christmas Seal.

Let these messengers of protection accompany all holiday mail this year.

## REBUILT MACHINERY SAVES VITAL MEN AND METALS

EVER stop to think what employment of rebuilt machinery means? Rebuilt machinery was constructed when labor and materials were plentiful. The men who originally made these machines are free for war work or army duty. Purchase of rebuilt machinery involves no new metal, requires no present labor except the small amount required for reconditioning. And, more important, it means production now—without waiting for delivery. Rebuilt machinery is a gift of Time, Labor and Material from a yesterday when we could afford them.

Finding used, but usable, machinery is no soft job. It takes hundreds of telephone calls and telegrams, letters and legwork. But O'Brien of Philadelphia is well prepared for the job by its 27 years of experience. And well equipped in its shops to bring used machinery back to peak operating or production capacity.

We have now on hand, not yet allocated, many desirable machine tools and equipment for steam and electric power plants for which your inquiries are invited.

*We are representatives in the Philadelphia area for many of the leading national manufacturers of new machinery*

### **THE O'BRIEN MACHINERY CO.**

**PHILADELPHIA'S LARGEST DEALERS IN MACHINERY AND EQUIPMENT**

**113 NORTH THIRD STREET • PHILADELPHIA, PA.  
TELEPHONE • MARKET 0727 CABLE ADDRESS • OBRIEN-PHILA**

#### **STEEL STORAGE WATER TOWER TANKS**

100,000 Gallons—Mounted on 82' Legs  
75,000 Gallons—Mounted on 70' Legs  
50,000 Gallons—Mounted on 84' Legs

Immediate Shipment.

**ARTHUR S. PARTRIDGE, St. Louis, 415 Pine**

#### **TANKS FOR SALE**

2—10,500 bbl. Field Tanks.  
220,000 gal. 43' x 20' Steel Tank.  
1—14,000 gal. and 2—11,000 gal. and  
4—8,000 gal. Steel Tanks.  
12—9' x 8' Wood Tanks.

**L. M. STANHOPE**

Wayne, Penna.

**FOR SALE:** Water Tube, Hor. Ret. Tub., Scotch Marine and ECONOMIC HIGH PRESSURE BOILERS, TANKS (Steel); Diesel and Steam Gen. sets; 3 each, 90, 125, 150 and 175 HP. Loco. Type Boilers, 175 lbs. steam; 1", 1 1/4", 1 1/2", 1 3/4" and 2" PLOW and IMPROVED PLOW Steel Wire Ropes, WIRE and Hemp Centers, NEW and slightly used, for Drag, Lines, Dredging, Hoisting, ETC.

Address No. 9542 c/o Mrs. Record

### **WANTED Your surplus or idle EQUIPMENT**

Your country demands the scrapping of all obsolete, usable equipment NOW. However, great care must be observed in selection of such scrap so that good usable machines which are vitally needed by war industry are not destroyed. Companies engaged in such production either directly or indirectly require all your extra or "stand-by" units not in full use. Let us know just what equipment you are not using to full capacity. Our records serve as a clearing house of such information and we are working in close cooperation with the War Production Board. It will speed matters greatly if you will specify details of such surplus units giving full specifications immediately.



**FIRST MACHINERY CORP.**  
819-837 E. 9th St., N. Y., N. Y.

#### **STEEL TANKS---PUMPS**

22,000 gal. Tank on 44 ft. Tower.  
35,000 gal. Tank on 90 ft. Tower.  
50,000 gal. Tank on 100 ft. Tower.  
3—20,000 gal. Horizontal oil Tanks.  
6—11,000 gal., 12—5000 gal. Horizontal Tanks.  
15,000 gal. Tank on 50 ft. Tower.  
25,000 gal. Tank on 75 ft. Tower.  
40,000 gal. Tank on 100 ft. Tower.  
100,000 gal. Tank on 40 ft. Tower.  
3—500—750 & 1000 GPM Steam Underwriters Fire Pumps.

**Tanks and Pumps  
Bought and Sold**

**R. C. STANHOPE, INC.**  
60 E. 42nd St., New York, N. Y.

#### **TANKS FOR SALE**

One 15,000 barrel (50 gallon) steel storage tank, 68 feet diameter, 32 feet high, cone top; also three 10,000 barrel steel tanks, 60 feet diameter, 32 feet high, cone top; all of the above welded construction having bottom and first ring of 5/16 inch plate, balance 3/4 inch plate, and cone roof 3/16 inch plate. Also, one 5,000 barrel steel storage tank of riveted construction.

**THE DOWNING COMPANY, INC.**  
BRUNSWICK, GEORGIA.

#### **FOR SALE**

1—Steel Building, 50 ft. wide, 100 ft. long, with additional 100 ft. outside crane way; 10 ton Bedford crane.

1—Steel Building, 54 ft. wide, 580 ft. long, with three heavy duty cranes.

1—Pittsburgh Machine Tool Co., Allegheny, Pa. lathe. Will handle anything up to 27" in diameter and 10 ft. long.

1—Steel Building, 100 ft. wide, 412 ft. long, three P & H heavy duty cranes.

1—25 Ton all steel stiff-leg derrick, 50' boom, 40' mast, electrically operated.

6—35 Ton all steel guy derricks, 105' boom, 100' mast, equipped with three drum steel hoists and approximately 8,000 ft. of 1 1/4" guys (all derricks in operation).

1—60 KVA—AC Generator with Exciter, 220 volt.

**B. F. COGGINS**  
811 Candler Bldg., Atlanta, Ga.